

ASIA AND THE PACIFIC

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Slower growth in the United States and European economies cast doubt for continued recovery in Asia and the Pacific region from the Asian financial crisis of 1997. In 2000, prices remained stable, industrial output was strong, and employment was mostly rising, but consumer confidence still was eroding. Asian stock markets were in decline during the last quarter of 2000. Consumers in Japan, the Republic of Korea, and Taiwan, which were Asia's three largest economies, were not spending as much as before the crisis. The electronics sector contributed more than 30% to the gross domestic product (GDP) of some Asian countries, especially the Republic of Korea and Singapore. The slowdown in the United States and Western Europe had a huge impact on Asian exports and economies. In 2000, exports to the United States accounted for 29.7% of exports from Japan; 23.4%, from Taiwan; 21.8%, from the Republic of Korea; 20.9%, from China; and 17.3%, from Singapore. If the United States reduced its imports, then it would greatly affect Asian exporters, often with the consequences of losing additional jobs and generally weakening the countries' economic growth.

Asia was particularly vulnerable to a slowdown in the world economy. Higher oil prices already have reduced regional growth prospects. Asia and Pacific region countries consumed about 28% of the world's oil but produced only 11% of world output. With the exception of Indonesia and Malaysia, which were net oil exporters, oil imports represented a large portion of Asia's foreign currency account. Other than oil prices, the banking sector remained a problem in Indonesia, Japan, the Republic of Korea, Taiwan, and Thailand. Injections of public funds helped to accelerate the cleanup of their financial sectors, but an ensuing economic downturn in these countries would slow the reconstruction process. A worldwide economic slowdown may make it more difficult for such countries as China and the Republic of Korea to privatize some of their state-owned companies because of the added pressure for continued Government support.

Production and Consumption

Significant non-fossil-fuel resources in the region included bauxite, copper, gold, iron ore, lead, nickel, silver, titanium-rich mineral sands, uranium, and zinc in Australia; antimony, copper, iodine, lead, magnesite, manganese, molybdenum, rare earths, tin, tungsten, and zinc in China; gold in Fiji; copper, gold, nickel, and tin in Indonesia; tin and associated titanium in Malaysia; copper, fluor spar, gold, and molybdenum in Mongolia; nickel in New Caledonia; gold and iron sands in New Zealand; magnesite in North Korea; copper and gold in Papua New Guinea; copper and gold in the Philippines; and gemstones in Sri Lanka. Economic mineralization also may exist in Cambodia, Laos, Thailand, and Vietnam; the mineral potential in these countries, however, has not been evaluated fully. Except for China and Indonesia, which rank 10th and

20th in the world, respectively, the region lacks large resources of petroleum; oil and gas, nevertheless, occur throughout the region, and commercial quantities were recovered in Australia, Brunei, Burma, China, India, Indonesia, and Malaysia. There are world-class size coal deposits in Australia, China, India, and Mongolia. Coal also occurs in Indonesia, which was becoming a major world exporter, New Zealand, North Korea, and Vietnam.

The Asia and Pacific region was an important producer of mined commodities and value-added mineral products. It produced more than 60% of the world's output of barite, refined tin, tungsten, and refined zinc and about 40% to 60% of the world's output of alumina, bauxite, cement, fluor spar, graphite, iron ore and pig iron, and refined nickel. In addition, the region accounted for 15% to 40% of the world's production of aluminum metal, mined and refined copper, gold, mined and refined lead, magnesite, mined manganese, mined nickel, salt, steel, and mined zinc.

Australia, China, Japan, and the newly industrialized economies of Asia and the Pacific region continued to have important roles in the consumption of metals and minerals. Japan was by far the largest single consumer of fuels, metals, and minerals. Most of its consumption of raw materials was for the manufacture of finished goods for domestic consumption and export. China also was a large consumer of fuels, metals, and minerals, largely end-use products manufactured for internal use. The per capita consumption of minerals in China, however, continued to be very low.

In terms of quantity of minerals consumed in the region, Japan ranked first, followed by China, the Republic of Korea, Taiwan, and India. In terms of demand growth rate, however, many of the countries that compose the Association of Southeast Asian Nations (ASEAN)—Brunei, Indonesia, Malaysia, the Philippines, Singapore, and Thailand—ranked highest in the region. The high growth in demand for base metals was attributable to the continuing growth of their economies as well as the investment in manufacturing plants in the ASEAN countries by Japan, the Republic of Korea, and Taiwan.

Exploration Activity

Exploration activity within Asia and the Pacific region was greatest in Indonesia, Papua New Guinea, and the Philippines, mostly within established or developing mining areas. Gold accounted for about one-half of all exploration interests, and base-metal exploration accounted for almost 40% of reported activity in 2000 (Metals Economics Group, 2000a, b). Exploration drilling increased the estimated resources of nickel-cobalt ores at Halmahera in Indonesia, precious-metal resources at Hidden Valley and Morobe in Papua New Guinea, and polymetallic ores at Rapu Rapu in the Philippines. Other exploration activities included drilling at the Sepon copper-gold

deposit in Laos, the Puthep copper deposit in Thailand, the base- and precious-metal deposit at Phuoc Son, and tungsten deposits near Hanoi, Vietnam.

Mineral exploration budgets for companies that operated in Australia during 2000 had the largest decline in U.S. dollar terms of any other country in Asia and the Pacific region (Wilburn, 2001). Canada's Metals Economics Group (MEG) of Halifax, Nova Scotia, reported a decline of about 18% in 2000 from that of 1999, and the Australian Government reported a 21% decline for Australian exploration during fiscal year 1999 (year ended June 30, 1999) from that of fiscal year 1998 (Metals Economics Group, 2000a, b). Depressed mineral prices, especially for gold, also contributed to the decline in Australian exploration. Australia ranked second in money spent but fourth in the number of individual project sites in the region, thus illustrating an area where a significant amount of the exploration effort involved advanced projects where companies were spending more money for feasibility studies and predevelopment work.

In Australia, the greatest amounts of budgeted exploration monies in 2000, which totaled approximately 62% or \$247 million of the country's total of \$399 million, were allocated for Western Australia; this was a slight increase compared with the 60% share held in 1999. Gold accounted for about 62%, or \$153 million, of the state's mineral exploration in 2000; this was a decrease of 1% compared with that of 1999. Exploration appropriations for base-metal (cobalt-nickel, copper, and lead-silver-zinc) targets were \$54 million; this was a 15% increase compared with that of 1999. Most of these amounts were for cobalt-nickel prospects with a lesser amount for lead-silver-zinc deposits; expenditures for copper exploration largely remained stagnant. Western Australia spent an estimated \$15 million for iron ore exploration in 2000 compared with about \$19 million in 1999. Diamond exploration costs in Western Australia were about \$14 million in 2000; this was a decrease of 14% compared with the 1999 level of \$16.5 million. Activity mostly was in the Kimberley region (Western Australia Department of Minerals and Energy, p. 30).

Exploration for heavy-mineral sands in the Murray Basin region of southern Australia has accelerated during the past 5 years. The region covers parts of New South Wales, South Australia, and Victoria and potentially contains an estimated 67 million metric tons of coarse-grained mineral sands as well as additional deposits of fine-grained sands (Industrial Minerals, 2001).

Native title issues continued to affect mineral exploration and development in Australia during 2000. Native Title claims have delayed the granting of exploration and mining leases across Australia. Only about 55% of exploration licenses in Western Australia were processed after 6 months, and delays for mining leases were greater (Western Australia Department of Minerals and Energy, 2000, p. 7). Exploration activity in northwestern Queensland remained low because no new exploration licenses were granted owing to the lack of Native Title legislation (Pasmaico Ltd., 2000, p. 37). Native Title claims continued to be tested in the court system.

China continued its transition away from a centrally planned economy with the gradual privatization of state-owned facilities that involved share ownership by investors, workers, and the state. The country was developing its western regions and requiring the mining industry to contribute to their economic development. Mining there, however, was still at a low level of

activity compared with that of the eastern region. Reforms continued to stimulate investment in mineral development, which included rules for exploration and development rights for foreign companies, uniform policies for mineral-resource planning and management, and improvement of procedures for granting exploration and mining licenses (Engineering and Mining Journal, 2000a).

The Indian Government approved foreign ownership for 13 of its mineral commodities. Approximately \$32.75 million of foreign investment was permitted in India's mineral sector for the 1999-2000 period (Engineering and Mining Journal, 2000b).

MEG estimated that mineral exploration budgets for the Pacific and Southeast Asia regions increased in 2000 by about 2% to \$200 million, or approximately 8.5% of the world total (Metals Economics Group, 2000a, b). Spending decreased in Indonesia but increased in New Caledonia, Papua New Guinea, and the Philippines. Exploration allocations were significantly lower than the high of \$440 million in 1997. Reduced investor confidence, perceived problems with Government policy, and continued unrest in the region also caused a number of juniors and some majors to suspend or reduce exploration activities in the region.

Country Review

Australia.—Australia's mineral industry, which was a world leader in mineral production, was a prominent factor in helping the country's GDP to increase. The GDP grew by an estimated 4% to about \$373 billion in 2000. Except for petroleum, Australia was virtually self-sufficient in most mineral commodities. Although mineral exploration spending and expenditures on new mining projects continued to decrease during the year, the country continued to attract exploration monies. Gold, with more than 55% of total spending, was the main target of exploration. Western Australia, which was the country's largest State, accounted for about 60% of all exploration spending, although all six States and the Northern Territory were bounteous mineral producers.

A goods and services tax of 10% became effective on July 1, 2000. It was levied by the Government on the value added at each point in the production and distribution processes for almost all goods and services.

In 2000, Australia's mineral and energy production was valued at more than \$25 billion. Metallic minerals contributed about 40%; petroleum and natural gas, about 30%; coal and peat, about 25%; and industrial minerals, 5%.

Australia relied heavily on exporting most of its mineral production. About 78% of the total mineral export value, however, was concentrated in the following commodity groups, ranked by value: oil and gas; coal; alumina, aluminum, and bauxite; iron ore; and gold. The mineral industry, which was Australia's largest commodity export earner, accounted for about 60% of the total. About 80% of the country's mineral production was exported.

China.—China's economic growth has been driven by surging exports and rising domestic consumption. The transfer of the nonperforming loans of four major state-owned banks to asset-management companies reduced the amount of bad debt on the books by more than \$150 billion. Official reports showed that most enterprises that were in loss in the past 2 years returned to profit in 2000. Unemployment rose because of the

closure or restructuring of loss-making enterprises and has affected consumer confidence.

Rising domestic demand was expected to play a key role in boosting China's economic growth. In the 10th 5-year plan (2001-2005), the Government proposed speeding up the development of western China and spurring the income growth of farmers. This would avert the rural market's potential for absorbing industrial consumables and alleviate the problems of overcapacity and deflation as the market for many consumer durables becomes saturated in the more developed urban areas. With this plan, the Government's management of the economy would continue to shift away from central planning to being more market oriented. In the past two decades, price controls, administrative directives that stipulated state-owned enterprises' input and output targets, and credit plans implemented by state-controlled banks for allocations of funds were all-important tools to ensure the planners' control over resources. In the 10th 5-year plan, remaining price controls on strategic goods and services, such as crude oil, grain, electricity, and telecommunications, were to be gradually liberalized. The Government intended to withdraw from the day-to-day management of state-owned enterprises, which would allow them to operate solely on the basis of market conditions and the desire to maximize profits.

In its bid to gain admission to the World Trade Organization (WTO), China agreed to open wider its markets to foreign companies. Apart from reducing import tariffs, China also is forecast to increase direct foreign investment in some previously protected sectors, such as banking, insurance, and telecommunications, by 20% per year for 4 years and to allow foreign-invested companies to distribute and sell products directly in China. Chinese enterprises consequently will face increased foreign competition. China was expected to liberalize its controls over interest rates by 2003. Effective September 2000, Chinese banks were allowed to determine all onshore foreign currency lending rates independently and to set interest rates on foreign currency deposits that exceeded \$3 million; before the changes, only foreign banks in China were allowed to set their own lending and deposit rates on foreign currency. The next move was to liberalize the lending and deposit interest rates on the renminbi, the local currency. In 2000, renminbi lending rates offered by banks were allowed to move only within a 10% band set by the People's Bank of China, and deposit rates were kept at rigid levels.

Fiji.—Mining was a small but integral part of Fiji's economy. Gold was produced from Emperor Mines Ltd.'s Vatukoula Mine, which was the country's only hardrock metal mine and often was called the Emperor Mine. All gold production from the Emperor Mine was exported unrefined and represented Fiji's second largest export commodity after sugar. Gold typically accounted for about 6% of Fiji's export revenues.

India.—The Government planned to privatize aluminum producers Bharat Aluminium Co. Ltd. (Balco), National Aluminium Co. Ltd. (Nalco), and possibly Hindustan Zinc Ltd. (HZL) by March 2001. A 51% share of Balco was up for sale to a strategic buyer, and the selloff was expected to be completed before April 2001. The Government, however, planned to retain a majority stake and management control in Nalco (70%) and HZL (49%). Other targets for privatization were Sponge Iron India Ltd. (SIIL), Metals & Minerals Trading

Corp. (MMTC), and Metal Scrap Trading Corp. The 100% state-owned SIIL operated a coal-fueled direct reduction plant in the State of Andhra Pradesh. The Government proposed to sell a 51% stake of MMTC to a strategic investor with the balance to be sold later through a public flotation.

The Government imposed a 4% special ad valorem duty on commodity imports by traders and introduced a uniform excise duty of 16% on most commodities. Beginning on April 1, a tax on export earnings was introduced for iron ore producers—20% of their income would be subject to taxes in the first year, 40% in the second year, and 60% in the third year. In 5 years, all iron ore export income would be taxed. The Goanese iron ore producers National Mineral Development Corp. and Kudremukh Iron Ore Co. Ltd. would be affected by these new taxes.

The Government decided to appeal the antidumping and countervailing duties imposed on Indian steel exports by the WTO. The main markets for the leading producers, which included Essar Steel Ltd., Steel Authority of India Ltd. (SAIL), and Tata Iron and Steel Co. Ltd., were Canada, the European Union, and the United States, particularly for plates and hot-rolled coil. The U.S. steel mills' antidumping action halted shipments of plate from India, and the Indian mills feared that their sales of hot-rolled coil would be the next target of an antidumping case.

Opposition was mounting over the Government's privatization plans of various steelworks and related operations. The Government of the State of Andhra Pradesh condemned the decision to sell the Vizag steel plant located there. Vizag was the newest public sector steel plant that made long products at the production capacity of 3 million metric tons per year. The Government was expected to sell a 51% stake to a strategic buyer. The State of West Bengal criticized plans to sell SAIL's alloy steel plant at Durgapur. There were similar developments in the State of Tamil Nadu over the Salem stainless steel plant. Foreign involvement possibly sparked the condemnations. At MMTC and State Trading Corp., the issue was job cuts.

Indonesia.—In 2000, new investment remained low compared with the pre-1997 financial crisis period because of concerns about political uncertainties. In 1999, the Indonesian Parliament passed law No. 22/1999, Regional Political Autonomy, which primarily pertained to regencies rather than provinces, and law No. 25/1999, Fiscal Decentralization. The impact of decentralization on investment rules and procedures, such as the regional authority on taxation, new investment approval criteria, and licensing, remained unclear. Both laws were scheduled to be implemented in May 2001. Because the fiscal year was shifted to January-December from April-March, the implementation date was moved to January 1, 2001. Law No. 22/1999 set up guidelines for local governments to have control over a broad range of areas, such as domestic trade, investment, and industry policy. Law No. 25/1999 mandated that a minimum of 25% of domestic revenue would be transferred to local governments through the General Allocation Fund. In addition, the Provincial Governments and other local governments where mining operations are located would receive after-tax royalties of 15% in oil, 30% in natural gas, and 80% in mining, fishing, and forestry. The law reversed the central Government's spending, which accounted for more than 80% of total governmental spending for the past 30 years.

Mining companies, however, were confused about the

connection between law No. 22/1999 and law No. 11/1967 on general mining. The main problem was that the two laws were contradictory. Law No. 11/1967 was centralistic, and law No. 22/1999 was decentralistic. After December 31, 2000, law No. 11/1967, in practice, had no legal strength to protect mining operations, particularly new investments. Also, law No. 41/1999 on forestry prohibited open cast mining. About 68% of the areas potentially available for mining exploration in Irian Jaya was covered by protected forests; 58%, in Sumatra; 50%, in Maluku; and 39%, in Sulawesi. Mining companies, such as The Broken Hill Proprietary Co. Ltd. (which officially changed its name to BHP Ltd. during 2000), PT Aneka Tambang, PT Freeport Indonesia Co., and Rio Tinto Ltd., postponed their expansion and new investment projects until the Government provided legal protection that would be clear and unequivocal. In 2000, mining companies that operated under contracts of work (COW) spent only \$550 million, which was about one-half that spent in 1999. Of the 30 mining contractors, 14 producing and 16 exploration companies postponed their investment programs. In 2000, 18 COWs were terminated. The Ministry of Energy and Mineral Resources and other related departments jointly drafted a new mining law/regulation to replace law No. 11/1967 with an updated regulatory framework by recognizing the changing role of Government, especially regarding implementation of regional autonomy and fiscal decentralization and further safeguarding of the natural environment.

Japan.—Japan's economy continued to recover with a 1.5% growth in its GDP in 2000, but the continuing economic downturn in the first half of 2001 indicated a possible economic recession in 2001. To save money and to promote greater efficiency in Government services, Japan undertook a massive reorganization of its central Government in late 2000 by reducing 23 ministries and agencies to 13. To create a recycling-oriented economy and to protect the environment, the Government enacted several new laws in 2000 and 2001. The new laws included the Law for Recycling Specific Kinds of Home Appliances, the Container and Packing Recycling Law, the Law Concerning Reporting of Release into the Environment of Specific Chemical Substances and Promoting Improvement in their Management, the Law for Promotion of Effective Utilization of Resources, and the Designated Household Appliance Recycling Law.

To secure raw materials for its world-class mineral-processing industry, Japan continued to promote equity investments in overseas mineral exploration and development of nonferrous metals in Mexico, Peru, and the United States in 2000. At the same time, Japan continued to expand its domestic and overseas joint-venture copper smelting and refining capacities. The expansion programs in copper smelting and refining had been completed by Hibi Kyodo Smelting Co. Ltd., Mitsubishi Materials Corp., Nippon Mining and Metals Co. Ltd., and Sumitomo Metal Mining Co. Ltd. in 2000. A major expansion program in nickel refining was expected to be undertaken by Sumitomo Metal Mining in the next 2 years.

Malaysia.—Malaysia's GDP grew by 8.3% in 2000, but the GDP in 2001 was expected to grow only by about 1.5%. To coordinate the relation between the Federal and State Governments and to oversee the overall integrated development of the mineral industry, the National Mineral Council was

established in 2000. Production of oil and gas continued to dominate the mining sector in 2000. Gold mining by Avocet Mining Co. Ltd. at the Penjom Mine in Pahang had expanded, and its ore reserves increased in 2000. Malaysia's cement industry underwent restructuring through consolidation. Several local and joint-venture cement companies had been acquired by major multinational cement companies in 2000, and further consolidation in the cement industry was expected in 2001.

Papua New Guinea.—In 2000, Papua New Guinea's mining sector contributed about 17% to the nation's GDP of \$3.75 billion, and the petroleum sector contributed approximately an additional 9%. All production from these sectors was exported, except for a small amount of natural gas that was produced for use by the Porgera gold-silver mine. An estimated 70% of the country's export income was derived from its mineral industry, although it employed only about 2% of the country's workforce.

Thailand.—Thailand's economy continued to recover with a GDP growth of 4.4% in 2000, but the economic growth was expected to be only about 2% in 2001. Thai Copper Industries Co. Ltd., which owned the 165,000-metric-ton-per-year (t/yr) copper smelter that was 70% completed in March 1998, was seeking new investors in 2000 for additional financing to complete the project. Asia Pacific Potash Corp. Ltd. made progress in 2000 by signing an interim mandate letter with the International Finance Corp. and a memorandum of understanding with Bechtel International Inc. for its proposed Som Boon potash project in Upon Thani Province, northern Thailand. The Government approved Akara Mining Ltd.'s wholly owned Chatree gold project. Construction of the gold mine started in November 2000 and was expected to be completed in late 2001.

Other Areas of Asia and the Pacific.—In Laos, Padaeng Industry Co. Ltd. started development of the Kaiso zinc deposit near Vang Vieng. Oxiana Resources NL was undertaking a feasibility study for development of its 40,000-t/yr Sepon copper-gold project using the solvent extraction-electrowinning process, and Pan Australia Resources NL was actively exploring in the Phu Kham area for copper in 2000.

In Myanmar, Myanmar Ivanhoe Copper Co. Ltd. was to expand the refined copper capacity of its SDK Mine by 40% to 35,000 t/yr by 2002, and a feasibility study was underway for development of the 125,000-t/yr Letpadaung deposit. A giant jade dike was discovered at Phukant in Kachin State in 2000.

The nickel industry, which included nickel ore mining and cobalt ore as a coproduct and ferronickel and nickel-cobalt matte from smelting, was the mainstay of New Caledonia's economy. It accounted for about 7% to 10% of the country's GDP and contributed about 80% to its foreign exchange earnings. New Caledonia has enormous nickel resources, which have been estimated to be from 25% to 40% of the world's resources.

Although New Zealand probably has been better known in the mineral industry community for its gold production, the country also is an important producer of industrial minerals; silver, as a byproduct of gold mining; and fossil fuels. Its mineral industries contributed about 1% to the country's GDP, which was estimated to be about \$57 billion in 2000.

The Philippines previously was ranked among the world's top

10 producers of chromite, copper, gold, and nickel. For much of the last quarter of the 20th century, however, its mining industry was slowed by internal and external effects, including natural disasters. Nevertheless, the Philippines was estimated to rank second to Indonesia in Southeast Asia and the Pacific region in terms of mineral prospectivity and resources. It has substantial resources of copper, gold, nickel, and silver, as well as other mineral commodities. In 2000, the Philippine mining industry, which was estimated to have contributed more than 1% to the country's GDP, generated about \$1 billion for the economy. It employed an estimated 400,000 people, or about 1.5% of the labor force; of the total, an estimated 300,000 workers were engaged in small-scale mining and panning activities, chiefly in artisanal gold workings.

In Vietnam, feasibility studies were underway for the development of bauxite deposits in the Lam Dong area for alumina and aluminum production and for the construction of a direct-reduced-iron plant at Ba Ria in Ba Ria-Vung Tau Province. In 2000, Olympus Pacific Minerals actively was exploring the Phuoc Son area in Quang Nam Province for gold.

References Cited

- Engineering and Mining Journal, 2000a, This month in mining—In Asia, China: Engineering and Mining Journal, v. 201, no. 9, September, p. ww33.
- 2000b, This month in mining—In Asia, India: Engineering and Mining Journal, v. 201, no. 7, July, p. ww20.
- Industrial Minerals, 2001, Murray Basin minerals—Players, progress, and plans: Industrial Minerals, no. 410, November, p. 51-57.
- Metals Economics Group, 2000a, Strategic report—Overview of worldwide exploration budgets: Metals Economic Group, pt. 1, September-October, 19 p.
- 2000b, Strategic report—Overview of worldwide exploration budgets: Metals Economic Group, pt. 2, November-December, 16 p.
- Pasminco Ltd., 2000, Annual report: Melbourne, Pasminco Ltd., 91 p.
- Western Australia Department of Minerals and Energy, 2000, Western Australia statistics digest 2000: Western Australia Department of Minerals and Energy, 60 p.
- Wilburn, D.R., 2001, Exploration: Mining Engineering, v. 53, no. 5, May, p. 41-51.

Major Sources of Information

- British Sulphur Corp. Ltd., London:
 Nitrogen, bimonthly.
 Phosphorus and Potassium, bimonthly.
 Sulphur, bimonthly.
- Dow Jones & Co., Hong Kong:
 Asia Yearbook, annual.
 Far Eastern Economic Review, weekly.
- International Lead and Zinc Study Group (ILZSG), London:
 ILZSG annual report.
- International Monetary Fund, Washington, DC: International Financial Statistics, monthly and annual.
- Informa Business Publishing, London: International Bulk Journal, monthly.
- Metal Bulletin plc, London:
 American Metal Market, daily.
 Metal Bulletin, semiweekly.
 Metal Bulletin Monthly, monthly.
 World Mining Equipment, monthly.
- MIIDA Ltd., London: Tin International, monthly.
 Mining Journal Ltd., London:
 Mining Journal, weekly.
 Mining Magazine, monthly.
 Mining Annual Review.
- Penn Well Corp., Tulsa, OK:
 International Petroleum Encyclopedia, annual.
 Oil and Gas Journal, weekly.
- Primedia Business Magazines and Media: Engineering and Mining Journal, monthly.
- United Nations Economic and Social Council, New York:
 Periodic country reports by the Economic and Social Commission for Asia and the Pacific.
- United Nations Statistical Office, New York: U.N. Trade Statistics and Energy Statistics Yearbook.
- U.S. Department of Commerce, Bureau of the Census, Washington, DC: U.S. Trade Statistics.
- World Bank, Washington, DC: News releases.

TABLE 1
ASIA AND THE PACIFIC: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2000

(Thousand metric tons unless otherwise specified)

Country	Aluminum			Barite	Cement	Coal		Copper		Fluorspar	Gold mine, Au content (metric tons)
	Bauxite	Alumina	Metal			Anthracite	Bituminous	Mine, Cu content	Refined, primary		
Afghanistan	--	--	--	2	120	--	200	5	--	--	--
Australia	53,802	15,680	1,769	12	7,500	--	301,000	830	393	--	296
Bangladesh	--	--	--	--	980	--	--	--	--	--	--
Bhutan	--	--	--	--	150	--	67	--	--	--	--
Brunei	--	--	--	--	232	--	--	--	--	--	--
Burma	--	--	--	29	393	--	50	27	27	--	(1/)
Cambodia	--	--	--	--	300	--	--	--	--	--	--
China	9,000	4,330	2,600	3,500	583,190	190,000	690,000	590	1,100	2,450	178
Fiji	--	--	--	--	95	--	--	--	--	--	4
Hong Kong	--	--	--	--	1,284	--	--	--	--	--	--
India	7,366	2,280	644	550	95,000	--	280,000	36	234	1	5
Indonesia	1,551	--	160	--	27,789	(1/)	76,800	1,012	--	--	125
Japan	--	337	7	--	81,070	--	3,149	1	1,437	--	8
Korea, North	--	--	--	70	16,000	50,000	--	14	20	25	5
Korea, Republic of	--	--	--	--	51,424	4,174	--	--	471	--	23
Laos	--	--	--	--	80	--	210	--	--	--	--
Malaysia	123	--	--	7	11,445	--	383	--	--	--	4
Mongolia	--	--	--	--	92	--	5,000	125	(1/)	198	11
Nepal	--	--	--	--	300	--	12	--	--	--	--
New Caledonia	--	--	--	--	--	--	--	--	--	--	--
New Zealand	--	--	325	--	950	--	3,200	--	--	--	9
Pakistan	9	--	--	17	9,500	--	3,116	--	--	1	--
Papua New Guinea	--	--	--	--	--	--	--	201	--	--	74
Philippines	--	--	--	--	11,959	--	1,300	26	135	--	36
Singapore	--	--	--	--	2,000	--	--	--	--	--	--
Sri Lanka	--	--	--	--	1,008	--	--	--	--	--	--
Taiwan	--	--	--	--	17,572	--	83	--	--	--	(1/)
Thailand	--	--	--	49	25,499	--	--	--	--	5	--
Vietnam	--	--	--	--	12,500	11,300	--	--	--	--	2
Total	72,000	22,630	5,500	4,200	958,400	255,000	1,365,000	2,867	3,817	2,680	780
Share of 2000 world total, percentage	53 2/	46	23	68	58	86	41	22	25	59	31
Share of 1999 world total, percentage	51 2/	43	23	64	58	99	46	19	23	57	30
United States	NA	4,782	3,668	392	89,510	NA	NA	1,443	1,803	--	354

See footnotes at end of table.

TABLE 1--Continued
 ASIA AND THE PACIFIC: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2000

(Thousand metric tons unless otherwise specified)

Country	Graphite	Iodine (metric tons)	Iron			Lead		Magnesite	Manganese mine, Mn content	Mercury mine, Hg content (metric tons)	Mica
			Ore, gross weight	Pig	Steel, crude	Mine, Pb content	Refined, primary				
Afghanistan	--	--	--	--	--	--	--	--	--	--	--
Australia	--	--	170,999	7,000	7,812	678	223	349	787	--	--
Bangladesh	--	--	--	--	35	--	--	--	--	--	--
Bhutan	--	--	--	--	--	--	--	--	--	--	--
Brunei	--	--	--	--	--	--	--	--	--	--	--
Burma	--	--	--	--	--	2	1	--	(1/)	--	--
Cambodia	--	--	--	--	--	--	--	--	--	--	--
China	400	500	224,000	131,030	127,240	570	930	2,500	1,000	200	150
Fiji	--	--	--	--	--	--	--	--	--	--	--
Hong Kong	--	--	--	--	500	--	--	--	--	--	--
India	140	--	75,000	21,321	26,924	29	70	365	590	--	2
Indonesia	--	75	489	--	3,100	--	--	--	--	--	--
Japan	--	6,157	2	81,071	106,444	9	130	--	--	--	--
Korea, North	33	--	700	250	1,000	70	70	1,000	--	--	--
Korea, Republic of	(1/)	--	336	24,938	43,107	3	171	--	--	--	65
Laos	--	--	--	--	--	--	--	--	--	--	--
Malaysia	--	--	259	--	2,430	--	--	--	--	--	4
Mongolia	--	--	--	--	--	--	--	--	--	--	--
Nepal	--	--	--	--	--	--	--	--	--	--	--
New Caledonia	--	--	--	--	--	--	--	--	--	--	--
New Zealand	--	--	2,400	--	765	--	--	--	--	--	--
Pakistan	--	--	--	1,500	500	--	--	4	--	--	--
Papua New Guinea	--	--	--	--	--	--	--	--	--	--	--
Philippines	--	--	--	--	530	--	--	1	--	--	--
Singapore	--	--	--	--	600	--	--	--	--	--	--
Sri Lanka	6	--	--	--	--	--	--	--	--	--	1
Taiwan	--	--	--	10,927	17,302	--	--	--	--	--	7
Thailand	--	--	(1/)	--	2,100	16	3	--	(2/)	--	--
Vietnam	--	--	--	--	306	--	--	--	--	--	--
Total	580	6,700	474,000	278,000	341,000	1,377	1,600	4,200	2,400	200	229
Share of 2000 world total, percentage	79	37	45	49	40	44	49	15 2/	33	12 2/	79
Share of 1999 world total, percentage	68	35	44	45	41	43	49	14 2/	35	11 2/	52
United States	--	1,466	63,095	47,878	102,200	468	341	W	--	NA	101

See footnotes at end of table.

TABLE 1--Continued
ASIA AND THE PACIFIC: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2000

(Thousand metric tons unless otherwise specified)

Country	Nickel		Petroleum, crude (million 42- gallon barrels)	Natural gas (dry) (million cubic meters)	Salt	Tin (metric tons)		Titanium		Tungsten mine, W content (metric tons)	Zinc	
	Mine, Ni content	Refined 3/				Mine, Sn content	Refined, primary	Ilmenite	Rutile		Mine, Zn content	Refined, primary
Afghanistan	--	--	--	3,000	13	--	--	--	--	--	--	--
Australia	168	112	208	30,794	8,798	9,146	775	2,156	237	--	1,410	493
Bangladesh	--	--	2	6,500	350	--	--	--	--	--	--	--
Bhutan	--	--	--	--	--	--	--	--	--	--	--	--
Brunei	--	--	70	10,751	--	--	--	--	--	--	--	--
Burma	(1/)	--	4	3,700	35	220	30	--	--	82	(1/)	--
Cambodia	--	--	--	--	40	--	--	--	--	--	--	--
China	51	21	1,200	27,000	31,280	97,000	111,000	170	--	37,000	1,710	1,920
Fiji	--	--	--	--	--	--	--	--	--	--	--	--
Hong Kong	--	--	--	--	--	--	--	--	--	--	--	--
India	--	--	240	30,000	14,450	--	--	380	17	--	144	176
Indonesia	98	--	516	82,334	650	51,629	46,432	--	--	--	--	--
Japan	--	87	5	2,453	1,300	--	593	--	--	--	64	542
Korea, North	--	--	--	--	500	--	--	--	--	700	190	180
Korea, Republic of	--	--	--	--	800	--	--	--	--	--	11	474
Laos	--	--	--	--	4	(1/)	--	--	--	--	--	--
Malaysia	--	--	249	56,009	--	6,307	26,228	125	--	--	--	--
Mongolia	--	--	65	--	1	--	--	--	--	52	--	--
Nepal	--	--	--	--	6	--	--	--	--	--	--	--
New Caledonia	120	--	--	--	--	--	--	--	--	--	--	--
New Zealand	--	--	16	4	60	--	--	--	--	--	--	--
Pakistan	--	--	20	24,222	1,333	--	--	--	--	--	--	--
Papua New Guinea	--	--	--	--	--	--	--	--	--	--	--	--
Philippines	23	--	(1/)	--	590	--	--	--	--	--	--	--
Singapore	--	--	--	--	--	--	--	--	--	--	--	--
Sri Lanka	--	--	--	--	81	--	--	--	--	--	--	--
Taiwan	--	10	(1/)	742	70	--	--	--	--	--	--	--
Thailand	--	--	21	20,196	792	2,363	17,076	--	--	30	18	78
Vietnam	--	--	115	1,550	730	4,500	2,400	109	--	--	16	--
Total	460	230	2,700	299,000	61,900	171,000	205,000	2,940	254	38,000	3,560	3,860
Share of 2000 world total, percentage	37	21	10	12	29	72	73	62	61 2/	84 2/	41	43
Share of 1999 world total, percentage	36	20	11	12	26	68	70	60 2/	53 2/	80 2/	37	40
United States	--	--	2,131	544,118	45,613	--	--	400	W	--	829	371

NA Not available. W Withheld to avoid disclosing company proprietary data. -- Zero.

1/ Less than 1/2 unit.

2/ Excludes U.S. production.

3/ Includes Ni content of oxide and chemicals but excludes ferroalloy.

TABLE 2
ASIA AND THE PACIFIC: CONSUMPTION OF SELECTED METALS

(Thousand metric tons unless otherwise specified)

Country	Aluminum, primary		Cadmium (metric tons)		Copper, refined		Lead, refined		Nickel		Steel, products (million metric tons)		Tin, refined (million metric tons)		Zinc, slab	
	1996	2000	1996	2000	1996	2000	1996	2000	1996	2000	1996	2000	1996	2000	1996	2000
Australia	322	346	24	24	160	168	69	45	2	2	(1/)	(1/)	900	2,200	178	193
China	2,135	3,533	600	600	1,193	1,883	464	570	46	58	97	141	42,800	49,600	977	1,288
Hong Kong	42	50	(1/)	(1/)	5	5	1	4	(1/)	(1/)	(1/)	(1/)	2,300	1,400	6	7
India	585	602	446	446	140	240	104	56	19	19	23	27	1,500	1,200	199	224
Indonesia	161	146	(1/)	(1/)	105	60	87	39	(1/)	(1/)	(1/)	(1/)	1,600	2,100	89	86
Japan	2,393	2,223	6,527	6,909	1,480	1,351	330	343	187	192	81	76	26,900	25,000	736	674
Korea, Republic of	674	823	380	380	598	862	231	309	50	90	38	39	11,200	15,200	350	419
Malaysia	115	106	(1/)	(1/)	144	166	75	102	(1/)	(1/)	(1/)	(1/)	5,400	5,600	32	95
New Zealand	39	43	(1/)	(1/)	10	3	8	7	(1/)	(1/)	(1/)	(1/)	--	100	24	14
Philippines	26	34	(1/)	(1/)	43	35	26	36	(1/)	(1/)	(1/)	(1/)	300	200	48	27
Singapore	40	34	(1/)	(1/)	14	10	13	11	(1/)	(1/)	(1/)	(1/)	200	100	15	15
Taiwan	310	502	20	20	544	628	124	148	50	106	18	21	7,100	11,100	196	294
Thailand	220	195	(1/)	(1/)	155	150	80	73	(1/)	(1/)	(1/)	(1/)	6,000	4,600	111	94
Asia and the Pacific, unspecified	116	150	119	119	20	21	85	51	13	13	46	41	2,100	1,200	130	119
Total	7,178	8,787	8,116	8,498	4,611	5,582	1,697	1,794	367	480	303	345	108,300	119,600	3,091	3,549
Percent of world total	35	35	46	45	37	37	30	29	40	42	46	45	46	45	41	41
United States	5,348	6,080	2,246	2,220	2,621	2,979	1,648	1,660	119	153	103	115	39,800	50,700	1,209	1,315

-- Zero.

1/ Included in Asia and the Pacific, unspecified.

Sources: World Bureau of Metal Statistics; World Metal Statistics, January and August 2001; and International Iron and Steel Institute's Apparent steel consumption 1994-2000.

TABLE 3
ASIA AND THE PACIFIC: SELECTED EXPLORATION SITES IN 2000

Country	Type	Site	Commodity
Australia	P	Bounty/South Deeps	Au.
Do.	E	Coburn	Mineral sands.
Do.	E	Cracow	Au, Ag.
Do.	E	Dongara	Mineral sands.
Do.	E	Dugald River	Zn, Pb, Ag.
Do.	E	Emily Ann	Ni, Co.
Do.	F	Hope Downs	Fe.
Do.	F	Kalpini	Ni, Co.
Do.	F	Mining Area C	Fe.
Do.	E	Morning Star	Au.
Do.	F	Mount Margaret	Ni, Co.
Do.	E	Mungari East	Au.
Do.	F	Murray Basin/Mindarie	Mineral sands.
Do.	E	Murray Basin/Douglas	Mineral sands.
Do.	P	Renison Bell	Sn.
Do.	D	Wallaby	Au.
Do.	E	SAMAG	Mg.
Do.	F	West Angelas	Fe.
Do.	F	Wildara/Thunderbox	Au.
China	E	Caijiaying	Zn.
Do.	F	Dongguashan	Cu, Ag, Au.
Do.	E	Duobaoshan	Cu.
Do.	E	Hulunbeier League	Au, Ag.
Do.	E	Jiawula	Pb, Zn, Ag.
Do.	E	Jingxi	Bauxite.
Do.	F	Lanping	Zn.
Do.	E	Lijiaguo	Pb, Zn.
Do.	E	Tuwu-Yandong	Cu.
India	E	Bailadila	Fe.
Do.	E	Balaghat	Mn.
Do.	E	Khetri	Cu.
Do.	E	Nellibeedu	Fe.
Do.	F	Rowghat	Fe.
Indonesia	F	Gag Island	Ni, Co.
Do.	F	Halmahera	Ni, Co.
Do.	E	Kelian	Au.
Do.	E	Lerokis	Au.
Do.	E	Mount Muro	Au.
Laos	F	Sepon	Cu, Au.
New Caledonia	E	Koniambo	Ni, Co.
Mongolia	E	Bumbat Gold	Au.
Do.	E	Asgat	Ag.
Pakistan	E	Duddar	Pb, Zn.
Do.	E	Rekodiq	Cu, Au.
Papua New Guinea	F	Morobe/Hidden Valley	Au, Ag.
Do.	E	Mount Sinivit	Au.
Do.	F	Ramu	Ni, Co.
Do.	E	Simberi	Au.
Philippines	F	Celestial	Ni, Co.
Do.	F	Tampakan	Cu, Au.
Do.	F	Rapu Rapu	Au, Ag, Cu, Zn.
Thailand	F	Puthep	Cu.
Vietnam	E	Phuoc Son	Au, Ag, Pb, Zn.

E Active exploration. F Feasibility work ongoing/completed. P Exploration at producing site.