



# 2006 Minerals Yearbook

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## ASIA AND THE PACIFIC

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# THE MINERAL INDUSTRIES OF ASIA AND THE PACIFIC

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The Asia and the Pacific region, which includes 31 countries and territories, has a total area of about 29.9 million square kilometers, which accounts for about 20% of the world total. The total population was about 3.63 billion, which accounted for about 56% of the world total in 2006. China and India, which were the world's two most populous countries, accounted for 67% of the region's total population and about 37% of the world's total population. The economies of Bhutan, Cambodia, China, India, and Mongolia were the fastest growing in the region in 2006 (table 1, 2).

Australia and China were among the world's leading mineral producers. Australia has large resources of bauxite, coal, cobalt, copper, diamond, gold, iron ore, lead, lithium, manganese, mineral sands, tantalum, and uranium. China has large resources of antimony, arsenic, barite, coal, fluorite, gold, graphite, iron ore, magnesium, rare earths, strontium, tin, tungsten, and zinc. India also was one of the world's significant mineral producers and has large resources of barite, bauxite, chromium, iron ore, manganese, rare earths, and salt. Other significant mineral producers in the region were Indonesia, which has large resources of coal, copper, gold, nickel, and tin; Mongolia, which has large resources of copper, fluorspar, and molybdenum; Papua New Guinea, which has large resources of copper and gold; the Philippines, which has large resources of copper, gold, and nickel; and Thailand, which has large resources of feldspar, gypsum, and potash.

Despite the large amount and wide variety of resources of nonfuel minerals and coal in Australia, China, India, Indonesia, Mongolia, Papua New Guinea, the Philippines, and Thailand, the regional supplies of numerous nonfuel minerals [including aluminum, bauxite, copper, diamond, gold, iron ore, lead, platinum-group metals (PGM), phosphate rock, silver, and zinc] and such major mineral fuels as coal, natural gas, crude petroleum, and refined petroleum products, were insufficient to satisfy the demand in the region. The situation was caused largely by a substantial increase in the consumption of nonfuel minerals and mineral fuels by China and India; by such resource-poor industrialized countries as Japan, the Republic of Korea, Singapore, and Taiwan; and by the growing economies of such middle-income developing countries as Indonesia, Malaysia, and Thailand. The Middle Eastern and Africa regions supplied a large percentage of the Asia and the Pacific region's requirements for natural gas, crude petroleum, and refined petroleum products. Africa, North America, and South America supplied a substantial percentage of the region's raw material requirements for ferrous and nonferrous metals.

China and Japan were the two major regional markets for crude and processed minerals. Japan was the region's leading consumer of ferrous and nonferrous metals because of its large manufacturing sector and its poor indigenous resources. China, however, remained the region's leading consumer in terms of growth in consumption, especially for such mineral commodities as aluminum, cement, coal, copper, iron and

steel, lead, natural gas, crude petroleum, tin, and zinc. India, Indonesia, the Republic of Korea, Malaysia, Singapore, Taiwan, Thailand, and Vietnam also were important consumers of such mineral commodities as aluminum, cement, copper, gold, iron ore, lead, phosphate rock, silver, steel, and zinc.

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For mineral production statistics—

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- Bhutan—Ministry of Trade and Industry, Department of Geology and Mines;
- Brunei—Prime Minister's Department, Petroleum Units;
- Cambodia—Ministry of Industry, Mines and Energy, Department of Mineral Resources Development;
- India—Indian Bureau of Mines;
- Japan—Ministry of Economy, Trade and Industry, Research and Statistics Department;
- Republic of Korea—Korea Institute of Geoscience and Mineral Resources;
- Laos—Ministry of Industry and Handicraft, Department of Geology and Mines;
- Malaysia—Ministry of Natural Resources and Environment, Minerals and Geoscience Department;
- Mongolia—Mineral Resources and Petroleum Authority;
- Nepal—Ministry of Industry, Commerce and Supplies, Department of Mines and Geology;
- Sri Lanka—Geological Survey and Mines Bureau;
- Thailand—Ministry of Industry, Department of Primary Industries and Mines; and
- Vietnam—Vietnam Institute of Geosciences and Mineral Resources.

For key economic data—

- Asian Development Bank in Manila, the Philippines;
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For exploration and other mineral-related information—

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## General Economic Conditions

Economic developments in the Asia and the Pacific region have been significant. Increased domestic consumption led to strong growth in such countries as China, Cambodia, India, and Mongolia. Exports remained an important driving force

of activity in such countries as Australia, China, Japan, the Republic of Korea, Singapore, and Taiwan. According to the International Monetary Fund, financial systems in the Asia and the Pacific region appeared well placed to handle the effects of the U.S. housing credit crunch that began in late 2006. Also, most Asia financial institutions were relatively unsophisticated compared with those in the developed countries, and their exposure to the problems associated with subprime mortgages in the United States was limited. The subprime mortgage crisis in the United States was still unraveling and was expected to slow down the U.S. economy significantly in 2008; this slowdown could affect economic growth in such exporting countries as Japan, the Republic of Korea, Singapore, and Taiwan. Domestic consumption in such countries as China, India, and Vietnam was expected to continue to sustain growth as the value of exports continues to decline. Economic growth in the Asia and the Pacific region was expected to remain strong because of the improved macroeconomic policies put in place during the past decade; this improvement was evidenced by declining debt burdens and increases in the current account balances, fiscal balances, and foreign reserves, which, in turn, are likely to provide Asia authorities with even greater policy flexibility to cope with the weakening external demand (International Monetary Fund, 2007, p. 7).

The economies of the developing Asian countries were expected to continue to perform better than the developed and newly industrialized Asian countries. Developing economies in the Asia and the Pacific region were expected to expand by 7.6%, and the developed economies in the region were projected to grow by 1.6% in the next 2 years. Exports could suffer from the slower growth in industrial countries and, coupled with the continued increase in domestic demand, the contribution of exports to the overall economic growth of export-dependent countries of East Asia and Southeast Asia was expected to decrease. In countries where domestic demand accounted for most of the output growth, such as in China and India, a modest economic slowdown was expected. Overall, the economic growth in the Asia and the Pacific region was expected to be higher than in other regions in the world. Owing to deflation of the U.S. dollar against other currencies and the increased consumption of oil in the region, oil prices during the past 2 years had risen consistently. The rising prices of food and oil will likely pose serious economic challenges for the Governments in this region in the future. The outlook for the next 2 years is for continuing economic growth in the region (Asian Development Bank, 2008, p. 1-23).

### **Investment Interest and Political Risk**

In China, the Ministry of Land and Resources suspended the issuance of any coal prospecting licenses from February 2, 2007, to December 31, 2008. The new policy also applied to coal licenses transferred through auction, bidding, listing, or other means. The decision to suspend the issuance of prospecting licenses was made to prevent excess capacity that could result from overinvestment in the coal sector.

In India, the Planning Commission of the Ministry of Mines planned to review the National Mineral Policy and recommend

a possible amendment to the Mines and Minerals Development and Regulation Act. The purpose was to make the provisions of the Act more in accord with international practice, streamline and simplify the procedures for the granting of mineral concessions, strengthen the infrastructure for mining activities, and improve the climate for investing in the mining sector.

In Mongolia, the Parliament approved an additional profit tax on copper and gold that requires companies that export copper and gold to pay a tax rate of 68% when the copper price exceeds \$2,600 per metric ton and the gold price reaches \$500 per troy ounce on the London Metal Exchange. The intention of the windfall tax was to encourage companies to add value to copper concentrates through the construction of a copper smelter in Mongolia.

In Vietnam, the Ministry of Industry had drafted and submitted for final Government approval a list of 11 key industries and policies to encourage the development of these industries during the next 5 years (2006-10). Bauxite mining, aluminum processing, and steel manufacturing were among the 11 key industries.

### **Legislation**

In Australia, the Government introduced two pieces of legislation to amend the Aboriginal Land Right (Northern Territory) Act and the Native Title Act. More than 60% of Australian mining operations have neighboring indigenous communities. The Native Title Act is designed to facilitate the development of mutually beneficial agreements between the mining industry and indigenous communities in ways that do not diminish indigenous rights or interests. The Aboriginal Land Right Act was enacted to maintain the inalienability of land claims under aboriginal land rights and to uphold the traditional owner's right to withhold consent to exploration companies. It also reinforces the delegation of most Commonwealth ministerial powers related to mining to the Northern Territory Government in order to reduce administrative complexity, improve the exploration and mining process, and provide measures to improve the accountability of royalty associations in receiving and distributing money.

In Afghanistan, a new mining law was passed in 2005 and regulations were being developed to provide the framework for more formal exploration for and mining of minerals. All minerals located on or under the surface are the exclusive property of the Government, except for hydrocarbons and water, which are regulated under separate laws. The law encourages the efficient development of the mineral industry by the private sector.

In China, the National People's Congress approved a unified corporate income tax rate for domestic and foreign companies. Before the unified income tax was approved, domestic companies were taxed at a rate of 33%, whereas foreign companies were paid an average after-tax incentive of 15%. The unified corporate income tax was in conformity with World Trade Organization standards. Starting on January 1, 2008, the unified corporate income tax was to be 25% and preferential tax policies would shift to investment in projects that concern environmental protection, high-technology, production safety, and water conservation development. The Ministry of Finance would set

up guidelines to allow foreign companies to have a transitional period. The Government believed that transparent taxation, a stable political situation, and a sound economic development plan were major factors in attracting foreign investment.

In Mongolia, the Parliament passed the 2006 amended mineral law. The amended mineral law makes changes to the mineral royalty, license fees, license terms, and tax incentives for mining. The amended mineral law could provide more investment opportunity for local companies without discouraging foreign investment. It also could enhance the accountability of mining companies with respect to production activities and rehabilitation of the environment and could improve the relationship between the local government and mining entities.

## Exploration

Exploration activity in much of the Asia and the Pacific region increased in 2006 from 2005 levels. Data derived from Metals Economics Group (MEG) suggest that the 2006 proposed budget allocations for Australian exploration activity increased by 28% to \$784 million from \$616 million in 2005. Similarly, the 2006 budget for the Pacific region (excluding Australia) increased by 36% to \$285 million in 2006 from \$210 million in 2005 (Metals Economic Group, 2006).

In 2006, Australia's total exploration (including petroleum) spending was \$2.37 billion, which was a 37.7% increase from that of 2005. Onshore and offshore petroleum exploration spending accounted for 53.6% of the total funding. The percentage of spending on gold exploration decreased to 32% of the total exploration expenditure owing to increased spending on base metals, coal, iron ore, mineral sands, and uranium. The State of Western Australia remained the leading destination for exploration investments; it received 46% of the total exploration expenditure (Australian Bureau of Statistics, 2007, p. 61).

In China, on January 1, 2006, a total of 16,914 legal and active exploration permits (excluding oil and gas) were issued, of which nonferrous metals accounted for 29.2%; precious metals, 25.8%; ferrous metals, 22.5%; fuels, 10.5%; nonmetallic minerals, 10.3%; and other, 1.7%. In 2005, China's total exploration expenditure was \$4.21 billion. The Central Government contributed \$156 million; local governments, \$183 million; domestic enterprises, \$3.74 billion; and foreign investors, \$126 million (Ministry of Land and Resources, 2007, p. 140, 644).

Mining activities in Mongolia were held back in part by uncertainty surrounding the terms of exploitation of some substantial mineral deposits. Foreign companies were awaiting Government decisions regarding state participation. The major issues centered on the size and terms of the Government stake in the deposit, the tax regime, and management authority. The uncertainty prompted some international companies to reconsider investments in Mongolia.

## Commodity Overview

Estimates for production of major mineral commodities for 2009 and beyond have been based upon supply-side

assumptions, such as announced plans for increased production/new capacity construction and bankable feasibility studies. The outlook tables in this summary chapter show historic and projected production trends; therefore, no indication is made about whether the data are estimated or reported, and revisions are not identified. Data on individual mineral commodities in tables in the individual country chapters are labeled to indicate estimates and revisions. The outlook segments of the mineral commodity tables are based on projected trends that could affect 2006 producing facilities and on planned new facilities that operating companies, consortia, or Governments have projected to come online within indicated timeframes. Forward-looking information, which includes exploration and mine development, estimates of future production, cost of capital projects, and timing of the start of operations, are subject to a variety of risks and uncertainties that could cause actual events or results to differ significantly from expected outcomes. Projects listed in the following section are presented as an indication of industry plans and are not a USGS prediction of what will take place.

## Metals

**Aluminum and Bauxite and Alumina.**—The region's production of bauxite accounted for about 55% of the world total in 2006. Australia, which was the world's leading producer of bauxite, accounted for 33% of the world total; it was followed by China, 14%, and India, 6.8%. Production of aluminum accounted for about 40% of the world total in 2006. China, which was the world's leading producer of aluminum, accounted for about 28% of the world total; it was followed by Australia, 5%; Japan, 2.7%; and India, 2.6% (table 4).

Regional production of bauxite and aluminum was expected to continue to grow at an average annual rate of about 5% and 4%, respectively, between 2006 and 2013 (tables 5, 6). This prediction was based on reported capacity expansions in Australia, China, India, and Vietnam.

Owing to increased demand for alumina in the world in recent years, Australian alumina producers planned to expand their refineries' output capacities. Alcan Inc. expanded its Gove alumina refinery to 3.8 million metric tons per year (Mt/yr) from 2.0 Mt/yr, and the refinery was expected to be fully operational in 2008. Alcan also planned to build a 1.0- to 1.5-Mt/yr greenfield alumina refinery in the Manantenina District. The Western Australia government approved BHP Billiton Ltd.'s application to expand its Worsley alumina refinery to 4.4 Mt/yr from 3.7 Mt/yr. Rio Tinto Aluminium Ltd. planned to increase its Yarwun alumina refinery output capacity to 3.4 Mt/yr from 1.4 Mt/yr. These companies would source their bauxite from domestic mines. Aluminum Corporation of China (Chalco) planned to develop the Aurukun bauxite deposit at Aurukun in the State of Queensland. The initial design was to mine 10 Mt/yr of bauxite ore and to produce 6.5 Mt/yr of beneficiated ore.

During the past 2 years, China aluminum producers expanded their alumina and aluminum output capacities. As a result, the country became a net importer of bauxite (mainly from Indonesia) and alumina (from Australia). By yearend 2007, China's alumina output capacity could reach 26 Mt/yr. Alumina refineries in Shandong Province relied on imported bauxite



to meet their demand. Refineries under construction included such companies as Chalco's Nanchuan Aluminum Co., Chalco Zunyi Aluminum, Guixi Aluminum Co. Ltd., Henan Zongmei Aluminum Co. Ltd, Huiyuan Chemical Engineering Co. Ltd., Shanxi Wusheng Aluminum Co. Ltd., and Yunnan Aluminum Co. Ltd. By 2010, China's alumina output was expected to meet domestic demand; however, the country was expected to become the leading bauxite importer in the world.

The Vietnamese Government approved Vietnam National Coal-Mineral Industries Group's proposal to mine bauxite and to build an alumina refinery in the Provinces of Dak Nong and Lam Dong. The construction of the bauxite mine and refinery was scheduled to begin in 2007 and operation would begin in 2009. China's Qingtongxia Aluminum Co. signed a joint-venture agreement with Ashapura Minechem of India to jointly develop an alumina refinery in the State of Gujarat. The State of Gujarat was reported to have bauxite reserves of up to 45 million metric tons (Mt).

The costs of producing aluminum have increased significantly during the past 2 years as a result of higher global energy costs. Alumina and electricity are the two major operational costs in the production of aluminum. China is the leading aluminum producing country in the world. Many of China's aluminum producers teamed up with power producers to form joint ventures to gain preferential electricity prices. Higher operating costs were expected to constrain production from marginal smelters in the developed countries. The Chinese Government encouraged enterprises to develop recycling programs and restricted the construction of aluminum smelters with output capacities of less than 100,000 metric tons per year (t/yr).

In 2006, aluminum consumption in the Asia and the Pacific region accounted for about 43.8% of the world total compared with 41.3% of the total in 2005. The increase of aluminum consumption in the region came mainly from China. In the future, strong growth in Chinese consumption is expected to be offset by falling consumption in Japan and newly industrialized Asian countries. In 2010, the region could account for more than 50% of the total aluminum consumption in the world. China would likely account for more than one-third of the world aluminum consumption, Japan would continue to account for about 6%, and India would increase its level of consumption to about 4% of the world total in 2010 from about 3% in 2006. China was projected to account for more than 60% of the growth in the region's aluminum consumption during the next 5 years. India could emerge as another major consumer in the longer term. Vietnam's aluminum consumption could also increase significantly and might contribute solidly to the expansion of aluminum consumption in the Asia and the Pacific region.

**Copper.**—The region's production of mined copper accounted for about 20% of the world total in 2006. Indonesia was the leading regional producer followed by Australia and China. Production of primary refined copper accounted for about 37% of the world's total output in 2006. Among the region's refined copper producers, China was the world's second ranked producer of primary and secondary refined copper, and Japan was ranked third. Australia, India, and the Republic of Korea were also important producers of refined copper in the region (table 4).

Between 2006 and 2013, regional production of mined copper was expected to continue to increase at an average annual rate of about 5.7%, and that of refined copper, at an average annual rate of 4.1%. This prediction was based on reported capacity expansions of mined copper in Australia, China, Indonesia, Laos, Mongolia, and Thailand, and on reported capacity expansions of refined copper in China, Laos, and Thailand (tables 7, 8).

In Australia, mine production was expected to increase because of higher output from the Tritton copper mine, which was owned by Tritton Resources Ltd., and the Telfer gold/copper mine, which was owned by Newcrest Mining Ltd. Several copper mine projects were expected to come onstream in 2007. BHP Billiton was considering an expansion of its Olympic Dam Mine to 500,000 t/yr, and Oxiana Ltd.'s Prominent Hill copper and gold project was under bankable feasibility study. Production of refined copper in Australia was expected to increase to 500,000 t/yr in 2007 and to 800,000 t/yr in 2011 owing to a 20,000-t/yr expansion project by the Townsville copper refinery and the 15,000-t/yr Lady Annie greenfield project. In Indonesia, gradual capacity expansions were to be undertaken by P.T. Freeport Indonesia Co. at Grasberg, Province of Papua, and by P.T. Newmont Nusa Tenggara at Batu Hijau on Sunbawa Island, Province of West Nusa Tenggara. In China, the Yulong copper mine in Xizang Autonomous Region was expected to be brought onstream in 2009. In Laos, Oxiana Ltd.'s Sepon Mine was expected to reach its full capacity in 2007, and the second-phase development of the Phu Kham Copper-Gold project was scheduled to be completed in 2007 and to be put into operation in 2008. The construction of the Oyu Tolgoi project was put on hold pending the Mongolian Parliament's approval of the joint-venture agreement between Ivanhoe Mines Ltd. and the Mongolian Government. Ivanhoe projected that mine construction would be completed within 18 months after the Mongolian Parliament approved the joint-venture agreement.

For refined copper, China's Jiangxi Copper Co. Ltd. planned to increase its refining capacity to 700,000 t/yr in 2010 from 400,000 t/yr in 2005 at Guixi, Province of Jiangxi, and to build a 200,000-t/yr secondary refined copper plant in Guangdong Province in 2008. Yunnan Copper Group Co. Ltd. planned to increase its refinery capacity to 600,000 t/yr in 2010 from 350,000 t/yr in 2005 at Kunming, Province of Yunnan. Tongling planned to expand its total refined copper output capacity to 800,000 t/yr in 2010. In India, Pebble Creek Resources Ltd. planned to build a 210,000-t/yr (ore) underground copper mine at Pithoragarh, State of Uttaranchal, which was expected to begin production in 2007.

In 2006, refined copper consumption in the Asia and the Pacific region accounted for about 45.5% of the world total compared with 46.2% of the total in 2005. The decrease in copper consumption in the region was the result of decreased copper consumption in China. The apparent decrease in copper consumption in China could be misleading, however, because China's State Reserve Bureau sold as much as 200,000 metric tons (t) of copper from its stockpile; copper producers sold about 100,000 t of copper from their warehouse inventories; and the country produced about 250,000 t copper from domestic scrap, which were not recorded. In the future, the power sector,

which accounted for about 50% of China's copper consumption in 2006, is expected to increase its consumption by 5% per year to reach a total of about 3 Mt in 2013. In 2010, the region could account for more than 50% of the world total copper consumption. China would likely account for about one-third of the world's copper consumption; Japan, about 7%; and India, about 3% in 2010 compared with about 2% in 2006. As consumer incomes increase, an increasing proportion of household expenditure is likely to shift toward the purchase of copper-intensive manufactured products. Except for Australia, Japan, the Republic of Korea, New Zealand, Singapore, and Taiwan, other Asia and the Pacific countries are well below the per capita copper consumption of developed countries. Copper consumption in the Asia and the Pacific region, especially in China, was expected to increase significantly in the next decade.

**Gold.**—The region's production of mined gold accounted for about 29% of the world total in 2006. Australia was the leading mined-gold-producing country in the region, followed by China and Indonesia (table 9). Australia was ranked second after the Republic of South Africa in the world production of gold. Papua New Guinea also was a significant gold producer in the region.

Regional production of mined gold was expected to continue to increase at an average annual rate of 3.5% between 2006 and 2013. This prediction was based on gradual capacity expansions mainly at the major copper and gold mines in Australia, China, Indonesia, Mongolia, and Papua New Guinea (table 9).

Australian gold production was expected to grow only steadily in the next few years. The Bendigo Mine in the State of Victoria, the Fortnum Mine in the State of Western Australia, the Gully and the Union Reef Mines in Northern Territory, and the Warrior Mine in the State of Queensland were all expected to be brought onstream in 2007. In China, the CSH Mine in the Nei Mongol Autonomous Region and the Lannigou Mine in Guizhou Province were expected to start production in 2007-08. The Jinshan Mines' Dadiangou Mine in Gansu Province was expected to be put into operation by 2010. Gold production in Indonesia increased because of access to exceptionally high-grade ore from Freeport Indonesia's Grasberg Mine, and output was expected to remain steady during the next several years. Owing to development of the Boroo Mine, Mongolia's production of mined gold increased sharply. Laos increased its mined gold production at the Sepon gold mine (operated by Oxiana Ltd.) and at the Phu Bia heap-leach gold mine (operated by Pan Australian Resources).

During the past decade, foreign investors introduced modern technology to China that accelerated gold exploration and mine production, and the Chinese Government provided incentives for foreign companies to invest in China's western region. Gold production in China increased at both large and small mines throughout the country. Gold production in South Africa continued to decrease during the past 4 years, and China could replace South Africa as the leading gold producing country in the world in the next 2 years.

The region was the world's major market for gold, which accounted for about 43% of the world total gold consumption in 2006. India was the world's leading consumer of gold, accounting for about 27% of the world total. Owing to continuing strong economic growth and rising urban incomes

(which lead to higher demand for gold jewelry), China could replace the United States as the second ranked gold consumer in the world in the next 2 years. Gold demand in other countries in the region was expected to remain steady.

**Iron and Steel.**—The region's production of iron ore was estimated to account for, in terms of gross weight, about 58% of the world total in 2006. Australia ranked second in the world in the production of iron ore (in terms of iron content); it was followed by China and India. The region's production of crude steel was estimated to account for about 54% of the world total. China, which was by far the world's leading producer of crude steel, accounted for about 34% of the world total, and Japan, India, and the Republic of Korea ranked second, fifth, and sixth, respectively, in the world. China's crude steel output was more than the combined total production of Japan, the United States, Russia, India, and the Republic of Korea (table 4).

East Asian countries, such as China, Japan, and the Republic of Korea, were the world's leading consumers and importers of iron ore. Australia was the region's and the world's leading supplier of iron ore. India's iron ore output increased sharply to meet domestic and regional demand. India, which was China's third ranked iron ore supplier after Australia and Brazil, was expected to remain in that position for the next several years. Brazil and South Africa also would continue to be major iron ore suppliers to the region. Imports of iron ore by East Asian countries were expected to continue to increase, especially imports by China to meet its steel industry's demand.

Regional production of iron ore was expected to increase at an average annual rate of about 2.5% between 2006 and 2013. This prediction was based on gradual capacity expansions in Australia, China, and India. In Australia, capacity expansion to 52 Mt/yr was planned at Rio Tinto plc's Yandicoogina Mine in late 2007. Rio Tinto also planned to develop a 22-Mt/yr iron ore mine at Hope Downs in the State of Western Australia by 2008. The Board of Rio Tinto approved the company to invest \$2.4 billion in two new iron ore mines, Bobe Valley/Brockman 4 and Mess/Warrambo, in Pilbara, Western Australia. The two mines were scheduled to begin operation in 2011 and 2012, respectively, with a total combined output capacity of 47 Mt/yr. BHP Billiton planned to expand capacity at its Newman Mine to 63 Mt/yr in 2010. Several smaller mines, such as the Jack Hill, the Koolan Island, and the Middleback Range Mines, came onstream in 2007. In India, a large new iron ore mine at Gandhamardan Malanjtoli, State of Orissa, started production in 2006 (table 10).

Regional production of crude steel was expected to increase at an average annual rate of about 4% between 2006 and 2013. China was expected to lead in crude steel expansion in the region. Shoudu Iron and Steel Group Co. and Tangshan Iron and Steel Group planned to build a 10-Mt/yr greenfield steel plant in Hebei Province. Anben Iron and Steel Group planned to expand steel capacity in Liaoning Province to 30 Mt/yr by 2010. Tonghua Iron and Steel Group Co. Ltd. planned to expand capacity in Jilin Province to 10 Mt/yr during the next 3 to 10 years. The Chinese Government approved the applications of Baoshan Iron and Steel Group and Wuhan Iron and Steel Group to build two 10 Mt/yr greenfield plants in the Provinces of Guangdong and Guangxi, respectively. The Shandong Provincial

Government decided to consolidate the iron and steel companies and to expand the total output capacity in the Province to meet the projected consumption.

India also was expected to expand its crude steel capacity significantly. The expansion would include the construction of a 13-Mt/yr steel plant at Paradip, State of Orissa, as proposed by the government of Orissa and Pohang Iron and Steel Co. Ltd. of the Republic of Korea, which was expected to start producing steel in 2009. It would also include two capacity expansion projects by JSW Steel Co. Ltd. at Vijayanagar, State of Karnataka, which were expected to increase capacity to 7 Mt/yr in 2008 and 10 Mt/yr in 2011. Tata Steel planned to expand its Jamshedpur steel plant's capacity to 36.5 Mt/yr. In Vietnam, Thai Nguyen Iron and Steel Co. planned to increase steel capacity to 1 Mt/yr by 2008 and to 1.3 Mt/yr by 2010 (table 11).

The volume of iron ore imports by China was expected to continue to increase. The country's dependence on iron ore imports could account for about 60% of its consumption by the end of this decade. The iron ore imports of Japan, the Republic of Korea, and Taiwan were expected to increase slightly during the next several years. Australia will continue to be a leading iron ore supplying country in the region. Owing to increased domestic demand, iron ore exports from India were expected to remain at the current level for the near future.

China was the world's leading consumer of steel products. Japan was the world's leading exporter and the region's major supplier of steel products to China and to such major consumers in the region as the Republic of Korea, Singapore, Taiwan, and Thailand. Steel consumption in India was expected to increase more significantly than in other countries in Asia, besides China, because of strong growth in industrial production and increased investment in the country's infrastructure. Owing to the low steel consumption in the region, the ASEAN countries continued to remain small steel producers.

**Lead and Zinc.**—The region's production of mined lead and zinc accounted for about 58% and 47%, respectively, of the world total in 2006 (table 4). China ranked as the world's leading producer of mined lead and zinc and accounted for about 37% and 28%, respectively, of the world total in 2006; it was followed by Australia, which accounted for more than 19% and 14%, respectively. China was the world's leading producer of lead and zinc metal, and Australia, India, Japan, and the Republic of Korea were the region's other important producers of lead and zinc (table 4).

Regional production of mined lead and zinc was expected to increase at an average annual rate of about 2% and 3%, respectively, between 2006 and 2013. This prediction was based on reported capacity expansions in Australia, China, and India (tables 12, 17). Regional production of primary refined lead and zinc metal was expected to increase at an average annual rate of about 3% and 2%, respectively, between 2006 and 2013. This prediction was based on gradual capacity expansions mainly in Australia and China. The region's production of refined lead was expected to increase in light of the Chinese Government's issuance of guidelines on how to increase recycling output capacity, to decrease energy consumption, and to protect the environment (tables 13).

In Australia, gradual capacity expansions were expected to be carried out at the Cannington Mine in the State of Queensland by BHP Minerals Ltd. and at the George Fisher and the Hilton Mines in Queensland by MIM Holdings Ltd. Teck Cominco Corp. planned to reopen its Lennard Shelf Mine in 2007. Several smaller zinc mines were planned and could produce 1.9 Mt/yr of zinc concentrate by 2011. In China, reported capacity expansions were for the new Bairendaba Mine in the Nei Mongol Autonomous Region to be brought onstream and to produce 10,000 t/yr of lead in concentrate. Aershada Mining Co. Ltd. and Bayannur Zijin Nonferrous Metal Co. Ltd. started construction of a 100,000-t/yr zinc smelter in Dong Ujinqin and Urad Houqi, respectively, in the Nei Mongol Autonomous Region. In Japan, Toyoha Mining Co. Ltd. planned to close its lead-zinc-silver mine in Hokkaido Prefecture in 2006 because of depletion of ores, but the closure would not affect the increasing regional production of mined zinc.

In China, Tongquan Chizhou Nonferrous Metals Co. planned to add 100,000 t/yr of output capacity at each of its lead and zinc metal operations in 2010. China's zinc metal output capacity was expected to increase by 300,000 t/yr in 2008 with expansions by such producers as Baiyin Nonferrous Metals Co. Ltd., Nandan Nanfang Co., Yuguang Gold-Lead Co. Ltd., and Zhuzhou Smelter. China does not produce sufficient lead and zinc concentrates to meet its projected smelter expansions and will continue to depend on imports to meet its domestic needs. Secondary lead output could account for 30% of China's total output capacity in 2010.

In 2006, refined lead consumption in the Asia and the Pacific region accounted for about 44.0% of the world total compared with 41.6% of the total in 2005. China was the world's leading consuming country and accounted for 27.4% of the world total. Refined zinc consumption in the region accounted for about 53.2% of the world total, which was a 0.4% increase from that of 2005. The region's increase in zinc consumption was attributable mainly to China, which accounted for 28.7% of the world total in 2006. The demand for zinc plate by the automobile and electronic sectors in China and India was expected to increase in the next decade; as a result, the region's zinc consumption was also expected to increase at a moderate rate.

**Nickel.**—The region's production of mined nickel, in terms of metal content, accounted for about 27% of the world total in 2006. Australia was the world's second ranked producer of mined nickel after Russia in 2006. Indonesia and New Caledonia, which were the region's other major producers of mined nickel, accounted for 6.6% and 4.9% of the world total, respectively (table 4).

Regional production of mined nickel was expected to continue to increase at an average annual rate of more than 6% between 2006 and 2013. This prediction was based on reported gradual expansions of capacity and increases in productivity (table 14). In Australia, Allegiance Mining NL's Avebury Mine was scheduled to be put into operation in 2008, and it would have an output capacity of 8,500 t/yr for 10 years. BHP Billiton's Ravensthorpe Mine was scheduled to begin operation in 2009 and to produce up to 59,000 t/yr of nickel. Refinery expansion at Yabulu in Townsville was expected to be completed in 2007



and to reach 180,000 t/yr in 2010. In China, gradual capacity expansions were to be undertaken at mines in the Xinjiang Autonomous Region during the period 2006-13. A nickel mine in Yuanjiang County, Province of Yunnan, was to be developed, and a 10,000-t/yr nickel refinery nearby was to be built by 2008. Jilin Jien Nickel Co. planned to expand its mine output capacity to 600 metric tons per day (t/d) from 300 t/d. In New Caledonia, Société Minière du Sud Pacifique (SMSP) reported that a new nickel mine would be developed to supply nickel concentrates to the new joint-venture nickel metal project between SMSP and Pohang Iron and Steel Co. Ltd. in 2008.

Stainless steel production accounted for about 65% of total world nickel consumption, and the demand for nickel was linked to the consumption of stainless steel. In the past several years, the demand for stainless steel in the region increased significantly, especially in China. China was the leading stainless steel producing and importing country, and Japan, the Republic of Korea, and Taiwan supplied about 90% of China's total imports. China's stainless steel output from Baogang and Taiyuan Iron and Steel Co. increased gradually; this increase was expected to accelerate as several new mills begin operation. Nickel consumption in China was expected to increase substantially in the next several years, and nickel consumption in such other countries as Japan, the Republic of Korea, and Taiwan was expected to decline in the future and would likely offset the increasing demand in China.

**Platinum-Group Metals.**—The region's production of mined platinum and palladium was insignificant and accounted for only 0.4% and 0.6%, respectively, of the world total in 2006. Jinchuan Nonferrous Metals of China produced platinum and palladium as byproducts of mined nickel from its nickel mining and refining operations at Jinchuan, Province of Gansu. Australia was not a primary producer of platinum-group metals (PGM), although small amounts of palladium were produced as a byproduct of nickel operations at Kalgoorlie-Boulder and Kambalda in the State of Western Australia. Regional PGM consumption was expected to increase in autocatalysts and electronics. The rapid growth in the manufacture of automobiles, light vehicles, computers, and electronic goods in China and India raised the demand for PGM in the region.

### *Industrial Minerals*

**Diamond.**—The region's production of diamond accounted for less than one-fifth of the world total in 2006. Australia was the leading diamond producing country in the Asia and the Pacific region. The Argyle Mine, which is located in the Ellendale diamond province in the State of Western Australia, was Australia's largest and the world's leading producing diamond mine. Diamond produced from the Argyle Mine by Rio Tinto Ltd. accounted for about 17% of the world total in 2006. Rio Tinto Ltd. invested \$760 million to develop the underground operation in the Argyle Mine, and the open pit operation was scheduled to be shut down in 2008. Australia exported most of its diamond output. The quality of diamond from Australia was considered low grade compared with that from Angola, Central African Republic, Guyana, India, Indonesia, and Sierra Leone. In 2006, the region imported about 42% of the world total

imported volume (in terms of carats) and exported about 17% of the world total exported volume. India was the leading diamond importing country in the region and ranked second in the world behind the European Union (Kimberley Process Rough Diamond Statistics, 2007).

**Phosphate Rock.**—The region's production of phosphate rock, in terms of phosphorus pentoxide ( $P_2O_5$ ) content, accounted for about 24% of the world total in 2006. China was the world's leading producer of phosphate rock, and was followed by the United States, Morocco, and Russia. Other important producers in the region were Australia, India, and Vietnam. Most of the region's production of phosphate rock was consumed within the region. China was the world's leading consumer of phosphate rock, and its demand for phosphate rock was expected to increase substantially in the next 5 years.

Regional phosphate rock production was expected to increase at an average annual rate of about 2.3%, which would lead to a shortage in the regional supply because the regional demand for phosphate rock was expected to increase at a rate of about 2.5% per year during the next 5 to 6 years. By 2010, China's domestic supply of phosphate rock was expected to be insufficient to meet its demand. Several mine expansion projects were underway in the Provinces of Guizhou, Hubei, and Yunnan. The country was projected to produce 13 Mt (in  $P_2O_5$  content) of phosphate fertilizer and to consume 46.5 Mt of phosphate rock in 2010, and would be required to import an additional 8 Mt of phosphate rock to meet its needs.

### *Mineral Fuels and Related Materials*

**Coal.**—The region's overall production of coal, which included anthracite, bituminous, and lignite, accounted for more than 50% of the world total in 2006. Production of anthracite coal, however, accounted for about 92% of the world total and production of bituminous coal accounted for about 58%. China, which was by far the world's leading producer of anthracite and bituminous coals, accounted for about 82.8% and 38.6%, respectively, of the world total. In the Asia and the Pacific region, North Korea and Vietnam were the other significant producers of anthracite coal; Australia, India, and Indonesia were the other important producers of bituminous coal and lignite (table 4). Japan was the world's leading importer and consumer of coal; virtually all coal requirements for its iron and steel and utility industries were imported. Australia ranked as the world's leading coal exporter. The major regional coal exporters (suppliers) were Australia, China, and Indonesia.

Overall regional coal production was expected to increase at an average annual rate of about 4% between 2006 and 2013. This prediction takes into account planned capacity expansions and newly developed mines. In Australia, capacity expansion at the Rolleston coal mine in the State of Queensland was completed in 2005; the mine was expected to produce 6 Mt/yr in 2006 and 12 Mt/yr in later years following completion of the second phase of development. The Wilpinjong Coal Mine was scheduled to be completed in 2007 and was designed to produce 13 Mt/yr. Capacity expansions of the Dawson, the Ensham, the Grasstree, and the Hail Creek Mines in Queensland were expected to be completed in 2007. In China, the Government



approved Shenhua Coal Group's application to develop the Buertai Coal Mine in Nei Mongol Autonomous Region, which would have a design capacity of 20 Mt/yr of coal. The Shanxi Provincial government projected that 70 Mt/yr of coal output capacity would be added in Shanxi Province; the Province was expected to produce 680 Mt of coal in 2008. In India, Coal India Ltd. planned to expand its output capacity to 364 Mt/yr in 2006 and to 504 Mt/yr in 2011. In Mongolia, companies that held exploitation licenses on such coal mines as Baruun Naran, Ovoot Tolgoi, and Tavan Tolgoi were waiting for the Mongolian Government to finalize the investment agreements before proceeding with the construction of the mines.

In the region, Japan, the Republic of Korea, and Taiwan virtually depended on imported coal for their iron and steel and utility industries. Australia ranked as the world's leading coal exporter. The major regional coal exporters (suppliers) were Australia, China, and Indonesia. China was the leading coal consuming country in the world. Owing to strong electricity demand, production constraints and mine safety issues at domestic mines, the volume of coal exports decreased and coal imports increased sharply during the past 2 years. China's coal-production bases are located in the northern region and the coal-consuming regions are located along the coastal areas. As a result of rail and port bottlenecks and increased domestic transportation costs, imported coal was more competitive in recent years. China could be a net coal importer by 2008. The Indian Government aimed to provide electricity to all citizens. To achieve this target, the construction of a number of large coal-fired powerplants was planned. Several of those coal-fired plants would be located at the coastal areas and would rely on imported coal. India was expected to increase coal imports from about 29 Mt in 2007 to 70 Mt in 2013 if all the planned coal-fired plants commence operations. Because of low production costs and the ability to increase exports rapidly, coal exports from Indonesia were expected to increase. A large share of Indonesia's export growth was expected to be destined for China and India.

**Uranium.**—The region's uranium resources are located mainly in Australia, which was ranked first in identified recoverable resources of uranium in the world and accounted for 24% of the world total. The country ranked second after Canada in the production of mined uranium in terms of uranium oxide ( $U_3O_8$ ) content. In Australia, three active mines were in operation, namely, the Beverly, the Olympic Dam, and the Ranger Mines, and two more were under development. A number of undeveloped deposits are located in Northern Territory, and the States of Queensland, South Australia, and Western Australia. BHP Billiton planned to expand Olympic Dam's uranium output to 15,000 t/yr from 4,400 t/yr. In China, most mined uranium was enriched and consumed domestically. China planned to add 10 more nuclear powerplants in the coastal areas during the next 10 years to relieve the electricity shortage in the region. China's uranium consumption was expected to increase and the country was interested in investing in uranium mines in Australia. Australia exported nearly all its mined uranium in concentrate of  $U_3O_8$  to China, Japan, and the Republic of Korea within the region and elsewhere to France, Spain, Sweden, the United Kingdom, and the United States.

Regional production of mined uranium was expected to increase at an average annual rate of about 4.5% between 2006 and 2013. This prediction was based mainly on capacity expansions at the Olympic Dam Mine by BHP Billiton and two  $U_3O_8$  in situ leach operations at the Beverly Mine by Heathgate Resources Pty. Ltd. and at the Honeymoon Mine by Southern Cross Resources Inc. in the State of South Australia. The Honeymoon project was approved in 2001 and could proceed before South Australia's "No New Mine" policy goes into effect. According to the Chinese Government's energy development plan, the nuclear power generation capacity would increase to 40,000 to 60,000 megawatts (MW) in 2020 from 8,600 MW in 2007. With an installed nuclear power capacity of 40,000 MW, China would need about 7,000 t of uranium. The Chinese Government encouraged companies to explore for uranium at home and overseas. China National Nuclear Corp. was the only company allowed to mine uranium in the country. India, Japan, the Republic of Korea, and Taiwan were expected to expand their nuclear power capacities during the period 2008-13. Regional consumption of uranium was expected to increase and would require imports of uranium from African countries, Canada, and Kazakhstan.

## Trade Review

During the past 3 decades, economic growth in the Asia and the Pacific region has been shifted from manufacturing exports toward machinery exports. This process was initially led by Japan, followed by the newly industrialized economies of Hong Kong, the Republic of Korea, Singapore, and Taiwan, and more recently by Indonesia, Malaysia, the Philippines, and Thailand. Trade liberalization and investment policy reforms in developing countries have reduced barriers to trade and investment. The cross-border transshipment of component production/assembly within vertically integrated production processes increased during the past several years and the composition of exports was shifted toward intermediate goods. The share of parts and components in manufacturing imports also was trending upward in the region. The volume of imports of parts and components had more than doubled in China, the Philippines, Thailand, and Vietnam. China had become one of the major export destinations for all economies in the region. The export value to China from such countries as the Republic of Korea, Malaysia, the Philippines, Singapore, and Thailand increased by almost five times during this period, at the expense of the United States and the European Union.

During the past several years, nonoil commodity prices continued to increase; the prices were supported by strong investment and demand in the region. Metal prices rose by more than 10%, led by aluminum, copper, iron ore, lead, nickel, and precious metals. China's consumption of these metals had grown by more than 100% during the past several years. Growth in Chinese metal demand alone more than offset lower consumption in the European countries. Regional economic integration has been to facilitate rationalization of industry across the region. The Association of Southeast Asian Nations facilitated regional economic integration by inviting all major Asian countries, including Australia, China, Japan, the Republic

of Korea, and New Zealand, to discuss investment and trade liberalization in the region.

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TABLE 1  
 ASIA AND THE PACIFIC: AREA AND POPULATION IN 2006

Country	Area <sup>1</sup> total (square kilometers)	Population <sup>2</sup> total (thousands)
Afghanistan	647,500	31,056 <sup>1</sup>
Australia	7,687,850	20,521
Bangladesh	144,000	144,345
Bhutan	47,000	647
Brunei	5,770	381
Burma	678,500	50,962
Cambodia	181,040	14,351
China	9,596,960	1,311,798
Fiji	18,270	853
Hong Kong	1,092	7,011
India	3,287,590	1,109,811
Indonesia	1,919,440	223,042
Japan	377,835	127,565
Korea, North	120,540	22,569
Korea, Republic of	98,480	48,418
Laos	236,800	5,765
Malaysia	329,750	25,767
Mongolia	1,565,000	2,585
Nepal	140,800	27,658
New Caledonia	19,060	238
New Zealand	268,680	4,125
Pakistan	803,940	159,002
Papua New Guinea	462,840	5,995
Philippines	300,000	84,590
Singapore	692	4,393
Solomon Islands	28,450	489
Sri Lanka	65,610	19,771
Taiwan	35,980	22,877 <sup>3</sup>
Thailand	514,000	64,724
Timor, East	15,007	1,029
Vietnam	329,560	84,108
Total	29,928,036	3,626,446
World Total	148,940,000	6,517,760

<sup>1</sup>Source: U.S. Central Intelligence Agency World Factbook 2007.

<sup>2</sup>Source: World Bank 2007, World Development Indicators Database.

<sup>3</sup>Source: Statistics Monthly, Accounting and Statistics, Executive Yuan, Taiwan, February 2008.

TABLE 2  
ASIA AND THE PACIFIC: ECONOMY IN 2006<sup>1,2</sup>

Country	Gross domestic product based on purchasing power parity		Real gross domestic product growth rate (percentage)		
	Total (million dollars)	Per capita (dollars)	2005	2006	2008
Afghanistan	35,980	1,347	14.0	7.5	8.4
Australia	682,195	33,036	2.8	2.7	3.8
Bangladesh	332,497	2,129	6.3	6.4	6.0
Bhutan	3,492	4,457	6.9	11.0	7.8
Brunei	9,729	25,771	0.4	5.1	2.3
Burma	129,601	2,293	13.6	5.5	4.0
Cambodia	47,788	3,374	13.3	10.8	7.7
China	10,147,333	7,721	10.4	11.1	10.0
Fiji	5,276	6,120	0.7	3.6	1.9
Hong Kong	267,151	38,713	7.5	6.9	4.7
India	4,231,583	3,801	9.0	9.7	8.4
Indonesia	967,317	4,356	5.7	5.5	6.1
Japan	4,155,548	32,529	1.9	2.2	1.7
Korea, North <sup>3</sup>	22,200	1,800	1.0	-1.1	NA
Korea, Republic of	1,163,191	24,084	4.2	5.0	4.6
Laos	14,074	1,900	7.1	7.6	7.6
Malaysia	315,583	11,957	5.2	5.9	5.6
Mongolia	7,495	2,891	7.6	8.6	7.5
Nepal	45,937	1,947	3.1	2.8	4.0
New Caledonia <sup>4</sup>	3,158	15,000	NA	NA	NA
New Zealand	107,241	25,874	2.7	1.6	2.3
Pakistan	426,489	2,744	7.7	6.9	6.5
Papua New Guinea	16,316	2,757	3.4	2.6	4.0
Philippines	466,632	5,365	4.9	5.4	5.8
Singapore	147,855	33,471	6.6	7.9	5.8
Solomon Islands	1,042	2,106	5.0	6.1	4.2
Sri Lanka	106,509	5,386	6.0	7.4	6.5
Taiwan	702,015	30,687	4.1	4.7	3.8
Thailand	604,575	9,193	4.5	5.0	4.5
Timor, East	1,695	1,669	2.3	-2.9	3.8
Vietnam	286,390	3,393	8.4	8.2	8.2
Total	25,453,887	XX	XX	XX	XX
World total	67,061,860	XX	XX	XX	XX

NA Not available. XX Not applicable.

<sup>1</sup>Includes data available as of October 2007. Gross domestic product listed may differ from that reported in individual country chapters owing to differences in source or date of reporting.

<sup>2</sup>Source: International Monetary Fund, World Economic Outlook Database, October 2007.

<sup>3</sup>Source: U.S. Central Intelligence Agency World Factbook 2007.

<sup>4</sup>Based on 2003 estimate, U.S. Central Intelligence Agency World Factbook 2006.

TABLE 3  
ASIA AND THE PACIFIC: SELECTED EXPLORATION SITES IN 2006<sup>1</sup>

Country	Type <sup>2</sup>	Site	Commodity	Company	Resources <sup>3</sup>	Exploration <sup>4</sup>
Australia	P	Agnew	Au	Goldfields Limited	2 Moz Au	Extensive work program.
Do.	E	Blue Spec Shear	Au, Sb	Northwest Resources Ltd.	200,000 oz Au, 4,900 t Sb	Extensive drilling.
Do.	E	Gidgee	Au	Gateway Mining NL	26,000 oz Au	Do.
Do.	E	Mertondale	Au	Navigator Resources Ltd.	152,000 oz Au	Do.
Do.	D	Snapper	Heavy minerals	Bemax Resources Ltd.	5.9 Mt heavy minerals	Do.
Do.	P	St. Ives	Au	Goldfields Limited	3.2 Moz Au	Extensive work program.
China	E	Dachang	Au	Inter-Citic Minerals Inc.	1.3 Moz Au	Extensive drilling.
Do.	E	Gold Mountain	Au	Tianshan Goldfields Ltd.	2.8 Moz Au	Do.
Do.	E	White Mountain	Au	Sino Gold Mining Ltd.	846,000 oz Au	Do.
Do.	E	Xietongmen	Cu, Au, Ag	Continental Minerals Corp.	945,000 t Cu, 4.3 Moz Au, 27 Moz Ag	Do.
Do.	D	Ying	Ag, Pb, Zn	Silvercorp Metals Inc.	40 Moz Ag, 215,000 t Pb, 70,000 t Zn	Extensive work program.
Do.	E	Zheng Guang	Au, Ag, Zn	Leyshon Resources Ltd.	933,000 oz Au, 2.6 Moz Ag, 64,000 t Zn	Extensive drilling.
India	E	Boula	PGE	Platinum Mining Corp. of India plc.	689,000 oz PGE	Do.
Indonesia	E	Yogyakarta/Pig Iron	Fe	Indo Mines Ltd.	35.7 Mt Fe	Do.
Malaysia	P	Penjom	Au	Avocet Mining plc.	484,000 oz Au	Do.
Do.	E	Raub	Au	Peninsular Gold Ltd.	52,000 oz Au	Do.
Philippines	D	Masara	Au	Crew Gold Corp.	263,000 oz Au	Do.

<sup>1</sup>Abbreviations used for commodities in this table include the following: Ag--silver; Au--gold; Cu--copper; Fe--iron ore; Pb--lead; PGE--platinum-group elements; Sb--antimony; Zn--zinc.

<sup>2</sup>Do--Approved for development; E--Active exploration; P--Exploration at producing site.

<sup>3</sup>Resources reported where available based on 2006 data from various sources and reflect unverified public information reported by trade journals.

<sup>4</sup>Sites where extensive (greater than 10,000 meters) drilling or significant (more than \$5 million) expenditures have been reported.



TABLE 4  
ASIA AND THE PACIFIC: PRODUCTION OF SELECTED COMMODITIES IN 2006<sup>1</sup>  
(Thousand metric tons unless otherwise specified)

Country	Metals													
	Aluminum		Copper		Gold, mine output,		Iron and steel		Lead		Iron		Steel, crude	
	Alumina	Bauxite	Metal <sup>2</sup>	Mine output, Cu content	Refined, primary	Au content (kilograms)	Ore, gross weight	Pig	Steel, crude	Mine output, Pb content	Refined, primary	Iron	Steel, crude	
Afghanistan	--	--	--	NA	--	--	--	--	--	--	--	--	--	--
Australia	18,312	62,307	2,062	879	429	247,000	295,000	6,276	7,937	686	233	--	--	--
Bangladesh	--	--	--	--	--	--	--	--	20 <sup>e</sup>	--	--	--	--	--
Bhutan	--	--	--	--	--	--	5	--	--	--	--	--	--	--
Brunei <sup>3</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Burma	--	--	--	20	20	100 <sup>e</sup>	--	2 <sup>e</sup>	25 <sup>e</sup>	2 <sup>e</sup>	1	--	--	--
Cambodia	--	--	--	--	--	--	--	--	--	--	--	--	--	--
China <sup>e</sup>	13,700	27,000	11,710	873	2,000	245,000	601,000	412,450 <sup>4</sup>	419,150 <sup>4</sup>	1,330	2,130	--	--	--
Christmas Island	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fiji	--	--	--	--	--	1,430 <sup>e</sup>	--	--	--	--	--	--	--	--
Hong Kong <sup>3</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
India <sup>e</sup>	2,800	12,732 <sup>4</sup>	1,104 <sup>4</sup>	24 <sup>4</sup>	654	--	160,000	26,000	44,000 <sup>4</sup>	67	77 <sup>4</sup>	--	--	--
Indonesia	--	1,502	250	793	218	164,400	--	--	2,500	--	--	--	--	--
Japan	330 <sup>e</sup>	--	1,127	--	1,342	8,904	--	84,270	116,226	1	108	--	--	--
Korea, North <sup>e</sup>	--	--	--	12	15	2,000	5,000	900	1,070	13	9	--	--	--
Korea, Republic of	--	--	--	(5)	576	277	227	27,548	48,437	(5)	163	--	--	--
Laos	--	--	--	61	61	6,300	--	--	--	--	--	--	--	--
Malaysia	--	92	--	--	--	3,497	667	--	5,500 <sup>e</sup>	--	--	--	--	--
Mongolia	--	--	--	130	3	22,561	180	--	70	--	--	--	--	--
Nauru <sup>3</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nepal	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Caledonia	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Zealand	--	--	359	--	--	10,618	--	664 <sup>e</sup>	862 <sup>e</sup>	--	--	--	--	--
Pakistan	--	7	--	19	--	--	60	105,000 <sup>e</sup>	1,100 <sup>e</sup>	--	--	--	--	--
Papua New Guinea	--	--	--	194	--	50,000 <sup>e</sup>	--	--	--	--	--	--	--	--
Philippines	--	--	--	17	181	36,141	--	--	550 <sup>e</sup>	--	--	--	--	--
Singapore	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solomon Islands	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sri Lanka	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Taiwan	--	--	--	--	--	--	--	10,500	19,203	--	--	--	--	--
Thailand	--	--	--	--	19	3,500	264	--	5,350 <sup>e</sup>	--	--	--	--	--
Thailand	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vietnam <sup>e</sup>	--	30	--	5	5	2,500	510	300	1,000	6	--	--	--	--
Total	35,100	104,000	16,600	3,030	5,520	804,000	1,060,000	674,000	673,000	2,110	2,720	--	--	--
Share of world total	50%	55%	40%	20%	37%	33%	58%	69%	54%	58%	67%	--	--	--
United States	5,220	NA	2,280	1,200	1,210	252,000	52,700	37,900	98,200	429	153	--	--	--
World total	67,000	190,000	41,800	15,200	15,000	2,450,000	1,830,000	983,000	1,240,000	3,660	4,080	--	--	--

See footnotes at end of table.

TABLE 4—Continued  
ASIA AND THE PACIFIC: PRODUCTION OF SELECTED COMMODITIES IN 2006<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Country	Metals														
	Manganese ore,			Mercury,			Nickel, metal content			Tin, metric tons			Tungsten,		
	mine output, Mn content	mine output, Hg content (metric tons)	Mn content	mine output, Hg content (metric tons)	Refinery products	Mine output, Sn content	Mine output, Sn content	Refined metal, primary	Metal, primary	mine output, W content (metric tons)	Mine output, Zn content	Mine output, Zn content	Zinc, metric tons	Metal <sup>2</sup>	
Afghanistan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Australia	2,192	--	185	114	114	1,478	572	572	--	--	1,362,000	469,000	--		
Bangladesh	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Bhutan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Brunei <sup>3</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Burma	(5)	--	(5)	--	--	923	30 <sup>e</sup>	30 <sup>e</sup>	197	197	46	--	--		
Cambodia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
China <sup>e</sup>	1,600	760	82	102	102	126,000	132,000	132,000	69,000	69,000	2,840,000	3,150,000	--		
Christmas Island	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Fiji	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Hong Kong <sup>3</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
India <sup>e</sup>	650	--	--	--	--	--	--	--	--	--	231,000	393,900	--		
Indonesia	--	--	140	6	152	80,933	63,200	63,200	--	--	7,169	653,247	--		
Japan	--	--	--	--	--	--	854	854	600	600	67,000	72,000	--		
Korea, North <sup>e</sup>	--	--	--	--	--	--	--	--	--	--	16	662,521	--		
Korea, Republic of	--	--	--	25	25	70 <sup>e</sup>	--	--	--	--	42,000 <sup>e</sup>	--	--		
Laos	--	--	--	--	--	2,398	--	--	--	--	--	--	--	--	
Malaysia	--	--	--	--	--	--	22,850	22,850	85	85	54,850	--	--	--	
Mongolia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Nauru <sup>3</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Nepal	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
New Caledonia	--	--	105 <sup>p</sup>	49 <sup>p</sup>	49 <sup>p</sup>	--	--	--	--	--	--	--	--	--	
New Zealand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Pakistan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Papua New Guinea	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Philippines	--	--	59	--	--	--	--	--	--	--	--	--	--	--	
Singapore	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Solomon Islands	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sri Lanka	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Taiwan	--	--	--	11 <sup>e</sup>	11 <sup>e</sup>	190 <sup>e</sup>	27,540	27,540	380 <sup>e</sup>	380 <sup>e</sup>	32,103	67,767	--		
Thailand	(5)	--	--	--	--	3,500	2,500	2,500	--	--	50,000	--	--	--	
Vietnam <sup>e</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Total	4,440	760	571	459	459	215,000	250,000	250,000	70,300	70,300	4,690,000	5,470,000	--		
Share of world total	36%	67%	27%	33%	33%	73%	77%	77%	89%	89%	47%	51%	--		
United States	--	NA	--	--	--	--	--	--	--	--	727,000	269,000	--	--	
World total	12,200	1,140	2,130	1,390	1,390	293,000	324,000	324,000	78,900	78,900	10,100,000	10,600,000	--		

See footnotes at end of table.

TABLE 4—Continued  
ASIA AND THE PACIFIC: PRODUCTION OF SELECTED COMMODITIES IN 2006<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Country	Industrial minerals										Mineral fuels				Petroleum, crude (thousand 42-gallon barrels)
	Cement, hydraulic	Fluorspar (metric tons)	Graphite (metric tons)	Magnesite (metric tons)	Mica (metric tons)	Salt	Coal		Natural gas, dry (million cubic meters)	Bituminous	Anthracite	Bituminous	Natural gas, dry (million cubic meters)		
							Anthracite	Bituminous							
Afghanistan	NA	--	--	--	--	NA	--	NA	--	--	NA	--	NA	--	
Australia	9,000 <sup>e</sup>	--	--	446	--	11,424	--	309,000	--	--	44,100	--	44,100	163,900	
Bangladesh	5,100 <sup>e</sup>	--	--	--	--	350	--	--	--	--	15,000 <sup>e</sup>	--	15,000 <sup>e</sup>	2,000 <sup>e</sup>	
Bhutan	180 <sup>e</sup>	--	--	--	--	--	--	--	--	--	82 <sup>e</sup>	--	--	--	
Brunei <sup>3</sup>	NA	--	--	--	--	--	--	--	--	--	--	--	NA	NA	
Burma	570	--	--	--	--	35 <sup>e</sup>	--	--	--	--	12,501	--	12,501	7,675	
Cambodia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
China <sup>e</sup>	1,236,770 <sup>4</sup>	2,750,000	720,000	6,700	--	56,630 <sup>4</sup>	--	1,700,000	--	510,000	1,700,000	--	51,000	1,400,000	
Christmas Island	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Fiji	145 <sup>e</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	
Hong Kong <sup>3</sup>	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	
India <sup>e</sup>	155,000	11,200	120,000	370	3,900	15,503 <sup>4</sup>	--	350,000	--	--	28,000	--	28,000	250,000	
Indonesia	34,000	--	--	--	--	700 <sup>e</sup>	--	153,400	52 <sup>e</sup>	52 <sup>e</sup>	52,000 <sup>e</sup>	--	52,000 <sup>e</sup>	340,000 <sup>e</sup>	
Japan	69,942	--	--	--	--	1,166	--	1,341	--	--	3,494	--	3,494	5,643	
Korea, North <sup>e</sup>	5,700	12,500	30,000	1,000	--	500	--	16,000	--	16,000	--	--	--	--	
Korea, Republic of	53,971	--	68	--	30,356	286	--	2,824	--	2,824	--	--	--	--	
Laos	250 <sup>e</sup>	--	--	--	--	35 <sup>e</sup>	--	--	--	--	--	--	--	--	
Malaysia	17,860	--	--	--	5,152	--	--	902	--	--	50,710	--	50,710	255,425	
Mongolia	141 <sup>e</sup>	393,000	--	--	--	1	--	7,885	--	--	--	--	--	369	
Nauru <sup>3</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Nepal	295 <sup>e</sup>	--	--	--	--	--	--	12	--	--	--	--	--	--	
New Caledonia	125 <sup>e</sup>	--	--	--	--	--	--	--	--	--	--	--	--	--	
New Zealand	1,120 <sup>e</sup>	--	--	--	--	100 <sup>e</sup>	--	5,768	--	--	3,900	--	3,900	7,000 <sup>e</sup>	
Pakistan <sup>e</sup>	11,000	1,050	--	4 <sup>4</sup>	--	1,663 <sup>4</sup>	--	3,400	--	--	36,000	--	36,000	25,000	
Papua New Guinea	--	--	--	--	--	425	--	2,529	--	--	155	--	155	17,300 <sup>e</sup>	
Philippines	12,033	--	--	--	--	--	--	--	--	--	--	--	--	181 <sup>e</sup>	
Singapore	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Solomon Islands	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sri Lanka	1,600 <sup>e</sup>	--	3,200 <sup>e</sup>	--	1,800 <sup>e</sup>	81 <sup>e</sup>	--	--	--	--	--	--	--	--	
Taiwan	19,294	--	--	--	4,841	--	--	--	--	--	410 <sup>e</sup>	--	410 <sup>e</sup>	148	
Thailand	39,408	3,240	--	--	--	1,108	--	--	--	--	24,317	--	24,317	47,067	
Vietnam <sup>e</sup>	31,500	4,000	--	--	--	950	--	38,900	--	38,900	6,766 <sup>4</sup>	--	6,766 <sup>4</sup>	119,300 <sup>4</sup>	
Total	1,710,000	3,170,000	873,000	8,520	46,000	91,000	568,000	2,530,000	328,000	568,000	328,000	2,530,000	328,000	2,640,000	
Share of world total	68%	59%	87%	55%	15%	35%	92%	57%	12%	92%	12%	57%	12%	10%	
United States	99,700	--	--	W	110,000	44,300	1,370	976,000	525,000	1,370	976,000	525,000	525,000	1,860,000	
World total	2,520,000	5,410,000	1,000,000	15,500	315,000	261,000	618,000	4,420,000	2,820,000	618,000	4,420,000	2,820,000	2,820,000	27,100,000	

See footnotes at end of table.

TABLE 4—Continued  
 ASIA AND THE PACIFIC: PRODUCTION OF SELECTED COMMODITIES IN 2006<sup>1</sup>

<sup>6</sup>Estimated; estimated data, U.S. data, and world totals are rounded to no more than three significant digits. <sup>7</sup>Preliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; not included in world total. -- Zero or zero percent.

<sup>1</sup>Totals may not add due to independent rounding. Percentages are calculated on unrounded data. Table includes data available as of June 11, 2008.

<sup>2</sup>Primary and secondary production.

<sup>3</sup>Not included in USGS Minerals Yearbook, volume III.

<sup>4</sup>Reported figure.

<sup>5</sup>Less than 1/2 unit.



TABLE 5  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED BAUXITE MINE PRODUCTION, 1995-2013<sup>1</sup>

(Thousand metric tons, gross weight)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	42,700	53,800	59,960	62,307	67,000	73,000	80,000
China	5,000	9,000	22,000	27,000	40,000	43,000	45,000
India	5,240	7,560	12,385	12,732	16,000	18,000	20,000
Indonesia	899	1,150	1,082	1,502	1,800	2,000	2,200
Malaysia	184	123	5	92	30	30	30
Other	3	9	27	40	1,700	1,700	1,700
Total	54,000	71,600	95,000	104,000	127,000	138,000	150,000

<sup>c</sup>Estimated.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 6  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED PRIMARY AND SECONDARY ALUMINUM METAL PRODUCTION, 1995-2013<sup>1</sup>

(Thousand metric tons)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	1,300	1,770	2,030	2,060	2,100	2,200	2,200
China	1,750	2,800	9,740	11,700	13,500	15,000	16,000
India	537	644	942	1,104	1,300	1,800	1,900
Indonesia	220	160	252	250	250	260	260
Japan	1,280	1,217	1,039	1,070	1,006	1,006	1,000
New Zealand	273	328	373	359	370	380	380
Other	18	7	7	7	610	700	700
Total	5,380	6,900	14,400	16,600	19,100	21,000	22,000

<sup>c</sup>Estimated.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 7  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED COPPER MINE PRODUCTION, 1995-2013<sup>1</sup>

(Metal content in thousand metric tons)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	398	829	930	879	1,000	1,300	1,400
China	445	593	762	873	1,000	1,050	1,100
India	47	32	27	24	26	26	25
Indonesia	444	1,010	1,064	793	1,100	1,300	1,500
Mongolia	122	125	127	130	130	250	300
Papua New Guinea	213	203	193	194	200	200	200
Philippines	108	130	16	17	18	18	18
Other	26	44	52	110	200	200	210
Total	1,800	2,970	3,170	3,020	3,670	4,340	4,750

<sup>c</sup>Estimated.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 8  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED REFINED COPPER METAL PRODUCTION, 1995-2013<sup>1</sup>

(Thousand metric tons)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	248	488	461	429	550	800	800
China	1,080	1,370	2,600	3,000	4,000	4,200	4,400
India	40	243	517	654	670	680	690
Indonesia	--	158	263	218	240	280	320
Japan	1,190	1,440	1,395	1,532	1,600	1,600	1,600
Korea, Republic of	235	468	520	576	600	620	620
Other	187	195	270	300	520	530	530
Total	2,980	4,360	6,010	6,710	8,180	8,710	8,960

<sup>c</sup>Estimated. -- Negligible or no production.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 9  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED GOLD MINE PRODUCTION, 1995-2013<sup>1</sup>

(Metal content in kilograms)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	254,000	269,000	263,000	247,000	270,000	300,000	290,000
China	140,000	180,000	225,000	245,000	290,000	310,000	320,000
Indonesia	64,000	125,000	130,620	164,400	200,000	210,000	220,000
Japan	9,190	8,400	8,300	8,900	8,200	8,200	8,300
Korea, North	5,000	6,600	2,000	2,000	3,000	3,000	3,000
Mongolia	4,500	11,800	24,120	22,561	25,000	33,000	40,000
New Zealand	12,100	9,880	10,583	10,618	11,000	12,000	12,000
Papua New Guinea	51,700	74,500	68,483	53,700	74,000	80,000	80,000
Philippines	27,000	36,500	37,490	36,141	38,000	40,000	42,000
Other	9,330	17,400	25,306	20,000	20,700	19,700	19,600
Total	577,000	739,000	797,000	810,000	940,000	1,020,000	1,030,000

<sup>c</sup>Estimated.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 10  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED BENEFICIATED IRON ORE PRODUCTION, 1995-2013<sup>1</sup>

(Metal content in thousand metric tons)

Country	Average ore grade (% Fe)	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	64	88,700	107,000	162,500	170,933	210,000	220,000	230,000
China	64	82,300	73,600	134,000	198,000	210,000	220,000	220,000
India	64	41,700	48,600	90,000	102,000	104,000	105,000	106,000
Korea, North	NA	2,000	1,100	1,400	1,400	1,500	5,000	5,000
Other		1,240	1,480	2,300	2,400	2,200	2,200	2,200
Total		216,000	232,000	390,000	475,000	528,000	552,000	563,000

<sup>c</sup>Estimated. NA Not available.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 11  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED CRUDE STEEL PRODUCTION, 1995-2013<sup>1</sup>

(Thousand metric tons)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	8,450	7,300	7,790	7,937	8,500	8,600	8,700
China	95,400	129,000	353,240	419,150	540,000	580,000	600,000
India	22,800	26,900	40,900	44,000	57,000	60,000	70,000
Japan	102,000	106,400	112,470	116,226	114,000	113,000	112,000
Korea, Republic of	36,800	43,100	47,820	48,437	53,000	52,000	52,000
Malaysia	2,450	2,430	5,296	5,500	5,700	5,900	6,000
Taiwan	11,600	17,300	18,567	19,203	21,500	22,000	23,000
Thailand	2,134	2,100	5,160	5,350	5,500	6,000	6,500
Other	7,220	6,030	8,280	7,200	7,680	8,100	8,500
Total	289,000	341,000	600,000	673,000	715,000	779,000	887,000

<sup>c</sup>Estimated.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 12  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED LEAD MINE PRODUCTION, 1995-2013<sup>1</sup>

(Metal content in metric tons)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	455,000	739,000	767,000	686,000	800,000	810,000	810,000
China	520,000	660,000	1,140,000	1,330,000	1,450,000	1,500,000	1,550,000
India	34,000	28,900	60,400	67,000	68,000	69,000	70,000
Japan	9,660	8,840	3,437	777	--	--	--
Korea, North	75,000	9,000	13,000	13,000	13,000	13,000	15,000
Vietnam	1,000	1,000	6,000	6,000	6,000	6,000	6,500
Other	12,080	16,800	2,000	2,000	2,000	2,000	2,000
Total	1,110,000	1,460,000	1,990,000	2,100,000	2,340,000	2,400,000	2,450,000

<sup>c</sup>Estimated. -- Negligible or no production.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 13  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED PRIMARY AND SECONDARY REFINED LEAD PRODUCTION, 1995-2013<sup>1</sup>

(Thousand metric tons)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	241	251	263	260	290	296	300
China	608	1,000	2,390	2,720	3,100	3,300	3,500
India	90	78	91	112	120	130	140
Japan	288	312	275	280	280	280	280
Korea, North	80	9	9	9	9	9	9
Korea, Republic of	130	171	181	163	165	165	165
Other	75	80	132	133	133	133	135
Total	1,380	1,900	3,340	3,680	4,100	4,310	4,530

<sup>c</sup>Estimated.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 14  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED NICKEL MINE PRODUCTION, 1995-2013<sup>1</sup>

(Metal content in metric tons)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	103,000	167,000	189,000	185,000	250,000	280,000	320,000
China	41,800	50,300	72,700	82,100	90,000	92,000	94,000
Indonesia	88,200	98,200	135,000	140,000	160,000	170,000	180,000
New Caledonia	120,000	126,000	111,939	102,986	130,000	150,000	170,000
Papua New Guinea	--	--	--	--	--	30,000	32,000
Philippines	15,100	17,400	26,636	58,879	75,000	75,000	75,000
Total	368,000	459,000	535,000	569,000	705,000	800,000	870,000

<sup>c</sup>Estimated. -- Negligible or no production.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 15  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED PLATINUM MINE PRODUCTION, 1995-2013<sup>1</sup>

(Metal content in kilograms)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	100	171	111	122	230	300	300
China	300	650	700	850	900	1,000	1,000
Total	400	821	811	972	1,130	1,300	1,300

<sup>c</sup>Estimated.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 16  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED PALLADIUM MINE PRODUCTION, 1995-2013<sup>1</sup>

(Metal content in kilograms)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	400	812	550	600	650	650	650
China	170	350	450	500	550	650	650
Total	570	1,160	1,000	1,100	1,200	1,300	1,300

<sup>c</sup>Estimated.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.



TABLE 17  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED ZINC MINE PRODUCTION, 1995-2013<sup>1</sup>

(Metal content in thousand metric tons)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	937	1,420	1,367	1,362	1,700	1,950	2,100
China	1,010	1,780	2,550	2,840	3,000	3,050	3,100
India	155	144	262	231	230	230	230
Japan	95	64	41	7	--	--	--
Korea, North	150	60	67	67	70	70	70
Thailand	23	27	43	31	33	35	35
Vietnam	14	13	45	50	50	50	50
Other	1	--	1	62	62	62	62
Total	2,390	3,510	4,380	4,650	5,150	5,450	5,650

<sup>c</sup>Estimated. -- Negligible or no production.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 18  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED PRIMARY AND SECONDARY ZINC METAL PRODUCTION, 1995-2013<sup>1</sup>

(Thousand metric tons)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	320	490	463	469	500	500	500
China	1,080	1,980	2,780	3,150	3,400	3,600	3,700
India	171	201	289	394	570	620	680
Japan	711	699	675	653	655	655	655
Korea, North	150	65	72	72	75	100	100
Korea, Republic of	279	474	645	663	680	700	700
Thailand	56	101	101	96	100	110	110
Total	2,770	4,010	5,030	5,500	6,000	6,300	6,400

<sup>c</sup>Estimated.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 19  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED DIAMOND PRODUCTION, 1995-2013<sup>1</sup>

(Thousand carats)

Country (average % gem grade)	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	40,700	26,600	34,307	29,220	30,000	30,000	30,000
China	1,130	1,150	100	100	100	100	100
India	21	16	16	15	15	14	14
Indonesia	22	23	30	30	30	30	30
Total	41,900	27,800	34,500	29,400	30,000	30,000	30,000

<sup>c</sup>Estimated.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 20  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED PHOSPHATE ROCK PRODUCTION, 1995-2013<sup>1</sup>

(P<sub>2</sub>O<sub>5</sub> content in thousand metric tons)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	1	225	624	644	700	700	700
China	7,960	5,820	9,130	11,600	12,500	13,000	14,000
India	360	336	355	355	370	380	390
Philippines	32	434	400	400	400	400	400
Vietnam	178	236	320	366	360	380	400
Other	510	510	360	240	200	170	170
Total	9,040	7,560	10,700	13,600	14,500	15,000	16,000

<sup>c</sup>Estimated.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 21  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED SALABLE COAL PRODUCTION, 1995-2013<sup>1</sup>

(Thousand metric tons)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	194,000	313,000	370,000	380,000	420,000	456,000	480,000
China	1,310,000	957,000	2,260,000	2,320,000	2,700,000	2,900,000	3,100,000
India	290,000	335,000	360,000	376,000	420,000	504,000	504,000
Indonesia	40,000	77,200	142,920	153,400	185,000	190,000	195,000
Japan	6,260	3,130	1,114	1,341	1,100	--	--
Korea, North	70,000	22,500	23,500	22,500	24,000	25,000	26,000
Korea, Republic of	5,720	4,170	2,832	2,824	2,800	2,700	2,600
Mongolia	5,019	5,185	8,256	7,885	10,000	12,000	15,000
New Zealand	3,445	3,586	5,267	5,768	5,900	5,900	6,000
Pakistan	2,997	3,116	3,367	3,400	3,400	3,500	3,500
Philippines	1,200	1,218	3,165	2,529	3,500	3,500	3,500
Thailand	18,400	17,786	23,689	24,317	25,000	25,000	27,000
Vietnam	8,350	11,600	34,100	38,900	50,000	60,000	70,000
Other	517	837	1,520	1,720	1,750	1,750	1,750
Total	1,960,000	1,760,000	3,240,000	3,340,000	3,850,000	4,200,000	4,400,000

<sup>c</sup>Estimated. -- Negligible or no production.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 22  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED URANIUM MINE PRODUCTION, 1995-2013<sup>1</sup>

(U<sub>3</sub>O<sub>8</sub> content in metric tons)

Country	1995	2000	2005	2006	2009 <sup>c</sup>	2011 <sup>c</sup>	2013 <sup>c</sup>
Australia	3,700	7,580	11,218	8,970	12,000	12,000	12,000
China	500	1,000	1,200	1,300	1,500	1,500	2,000
Total	4,200	8,580	12,400	10,270	14,000	14,000	14,000

<sup>c</sup>Estimated.

<sup>1</sup>Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

