



2005 Minerals Yearbook

ASIA AND THE PACIFIC

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 3.59 billion, which accounted for about 57% of the world total in 2005. China and India, which were the world's two most populous countries, accounted for 67% of the region's total population and about 38% of the world's total population. China's and Japan's economies ranked in the top five in the world. The economies of Afghanistan, China, and India were the fastest growing in the region in 2005 (tables 1, 2). Reconstruction efforts and international aid helped the Afghan economy grow.

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, nickel, silver, tantalum, uranium, and zinc. China has large resources of antimony, arsenic, barite, coal, copper, fluorite, gold, graphite, iron ore, magnesium, mineral sands, rare earths, silver, 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 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 North American 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 demand, 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.

Acknowledgments

The U.S. Geological Survey (USGS) acknowledges and thanks the following foreign Government agencies, international institutions, and private research organizations for providing mineral-production statistics, basic economic data, and exploration and mineral-related information:

For mineral production statistics—

- Australia—Australian Bureau of Agricultural and Resource Economics (ABARE) and Western Australia Department of Minerals and Petroleum Resources;
- 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 Primary Industry, 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; and
- Thailand—Ministry of Industry, Department of Primary Industries and Mines.

For key economic data—

- Asian Development Bank in Manila, the Philippines;
- International Monetary Fund in Washington, DC; and
- The World Bank in Washington, DC.

For exploration and other mineral-related information—

- Australian Bureau of Statistics in Canberra, Australia; and
- Metals Economics Group in Halifax, Nova Scotia, Canada.

General Economic Conditions

Despite the adverse effects of higher energy and mineral commodity prices, the economies of the Asia and the Pacific region remained strong. Revival of business investment was the main engine for the region's economic growth. The region's overall real gross domestic product (GDP) growth averaged about 5.4% in 2005. The growing economies of the region benefited from the robust growth in major industrial countries, especially the United States. Japan was the world's second ranked economy behind the United States; its slightly improving economy provided more investment opportunities domestically and abroad and was likely to benefit China, Indonesia, the Republic of Korea, Taiwan, and Thailand, which exported their products to Japan. Japan has been a key investor in many countries in Asia. China ranked as the region's leading economy in terms of total GDP based on purchasing power parity followed by Japan, India, the Republic of Korea, Indonesia, and Taiwan (table 2). Of the 31 countries and territories in the region, Australia ranked the richest in terms of its per capita GDP based on purchasing power parity of \$30,897 followed by Japan, Singapore, Taiwan, Brunei, and New Zealand; East Timor was the poorest.

The economic growth in the Asia and the Pacific region was expected to be higher than in other regions in the world and, according to the International Monetary Fund, was projected to be about 5.3% in 2007. The economic growth of the developing countries was projected to be the fastest within the region. China's real GDP was projected to grow at a slower rate of 9% compared with 9.9% in 2005 followed by Vietnam, 7.4%, and India, 7%. China's economy was expected to continue to grow at an annual rate of about 8% until 2010. Consumption was picking up slowly but steadily, and investment was concentrated more in the energy and transportation infrastructure sectors. Japan's GDP growth was expected to be lower at 2.1% in 2007 despite a strong growth in domestic consumption. Japan's investment accounted for 30% of the total foreign direct investment made in Thailand; 25%, in the Philippines; and 16%, in the Republic of Korea.

In South Asia, the economic growth was projected to be about 6% in 2007. India's economy was projected to grow by 7%; the industry and service sectors were expected to be the main engines for this growth. The Indian Government planned to increase funding for infrastructure investment, but this increase may be constrained by large budget deficits on the part of the Federal and State Governments. Bangladesh, Pakistan, and Sri Lanka all sustained modest economic growth owing to their increased agricultural production, exports, and industrial output.

Investment Interest and Political Risk

China continued to invest heavily in expanding its mineral industry's production capacity, especially of aluminum, cement, copper, iron and steel, lead, manganese, and zinc. In 2005, investments in the coal and oil sectors increased by 65.6% and 29.7%, respectively. The Government, fearing that the sectors with strong growth were "overheated," planned to curb credit and expansion investment projects related to aluminum, cement,

lead, steel, and zinc. The State Council raised the lending criteria for aluminum, cement, and steel projects by requiring that more equity investment be made via joint ventures. The Government was concerned that the new waves of investment in production capacity could diminish domestic prices because of increased supply. Yet, the rising prices of coal and iron ore in the world markets led to financial losses for many domestic ferrous and nonferrous metal producers.

In 2005, investment in Mongolia was focused mainly on copper and gold. Foreign investment increased in the areas of mineral exploration and production in the country. The mining sector accounted for 47% of total foreign direct investment. In 2005, Ivanhoe Mines Ltd. of Canada completed the feasibility study for the development of two copper-gold open pit mines at Oyu Tolgoi in Umnogovi Aimag in the southern Gobi area. The initial capital investment of about \$1.2 billion would be spent for the first 5 years of the project during which 450,000 metric tons per year (t/yr) of copper concentrates and 10.2 t/yr of gold could be produced from a mine throughput of 70,000 metric tons per day.

The Indian Government continued its investment policy of allowing private sector participation in exploration and production of the mineral sector. The investment policy attracted multinational companies to participate in exploration for base metals and other minerals. During the next 5 years, domestic and foreign companies planned to invest a total of about \$5 billion in a new bauxite mine, alumina refineries, aluminum smelters, and powerplants. In the iron and steel sector, investment of \$30 billion was planned for greenfield steel projects and capacity expansions. The Government also abolished limits on private oil exploration, production, and marketing companies.

In Laos, Oxiana Ltd. of Australia invested \$330 million and Pan Australian Resources NL of Australia invested \$210 million for exploration and development of copper and gold projects. In Malaysia, an investment of \$1.5 billion was to be spent for the first phase of the Sarawak aluminum smelter project by Smelter Asia Sdn. Bhd. Cahya Mata Sarawak Bhd. and China's Sinohydro Corp. and Shandong Luneng Group signed a memorandum of understanding to jointly build an aluminum smelter in Sarawak with a total investment of \$3 billion. In Thailand, Sougan Corp. of China planned to invest about \$2.5 billion to build an integrated steel plant to supply a wide range of steel products to the Thai domestic market and for export to the Association of Southeast Asian Nations (ASEAN) countries. In Vietnam, Aluminum Corp. of China and Vietnam National Coal Corp. planned to jointly develop a bauxite mine and an alumina refinery in Dak Nong Province with an investment of \$2 billion.

Legislation

China's mineral resources law was enacted in 1986 and amended in 1996. To attract foreign investment in mineral development and production in China, the Government urged the National People's Congress to amend the law to redefine mineral rights. In 2000, the State Council issued a decree to allow foreign investors to establish wholly owned mining subsidiaries to explore, develop, and produce minerals in China. In 2003, the Ministry of Land and Resources

established a mineral resources law consultant committee to seek recommendations from domestic and overseas mining law experts. In 2005, a multinational mining consortium that included BHP Billiton plc and Rio Tinto Group began working with the Government to revise the country's mineral resources law for foreign investors. The Government also established an energy law leadership group composed of representatives from 15 Government agencies to draft a new energy law. The proposed new law would close legislative gaps among existing regulations and laws and stress energy efficiency and sustainability and environmental protection. The group planned to complete a draft of the new law in the next 2 years.

The Indian Government decided that foreign equity holding was allowed up to 100% automatically for all nonfuel minerals, including diamond and precious stones. Coal, oil and gas, and uranium were exempted. The Government also introduced a Federal value-added tax (VAT) in April 2005 that replaced a complex web of Indian State sales taxes. The VAT formed the centerpiece of the Government's tax measures to simplify the system and raised revenue for cash-strapped regions. Eight States opposed the tax but a majority of India's 29 States had adopted the tax by yearend 2005.

In Indonesia, the drafting of a proposed new mining law (the Mineral and Coal Mining Law) was completed by the Ministry of Energy and Resources and submitted to the State Secretariat for approval before submission to the House of Representatives to be legislated into law. As of 2005, the legislative process had been ongoing for more than 4 years. The new mining law would replace General Mining Law No. 11/1967. The replacement was considered to be necessary because the old law was not compatible with conditions in the mining sector.

Mongolia's mineral law was adopted in 1997 and amended in 2001. A proposed bill relating to tax incentives for mining companies would reduce the 100% tax exemption to the first 2 years followed by a 50% exemption for the next 3 years. The duration of exploration licenses would be changed to 2 years with a discretionary extension of 3 years and the option of a 2-year extension. The drafted bill also proposed to change the term of mineral resource licenses to 20 years with the possibility of two 10-year extensions for a total of 40 years instead of the current terms of 60 years with a possible extension of 40 years for a total of 100 years. The proposed amendments on the mineral law were submitted to the Parliament for approval in December 2005 and were expected to be enacted in 2006.

In New Zealand, the Crown Minerals Act of 1991 sets the broad legislative policy for prospecting, exploration, and mining of Government-owned minerals in the country. In 2004, the Crown Minerals Business Plan outlined two strategic priorities for the Ministry of Economic Development to improve the security of the energy supply and to promote regional economic development. In Thailand, the Minerals Act of 1967, which stipulates the ownership of mineral resources by the state, was last amended in 2002 for underground mining; the Act permits mining at depths of greater than 100 meters below the surface without the need to obtain the specific consent of the holder of the surface right.

Several developments that took place during 2004 and 2005 affected the investment climate for mineral exploration in

the Philippines. In January 2004, Executive Order No. 270 (the National Policy Agenda on Revitalizing Mining in the Philippines) was issued. The order contained 12 guidelines for responsible mining while adhering to sustainable development. It contained a Minerals Action Plan crafted jointly by the private sector and Government stakeholders. Another landmark was the decision by the Philippine Supreme Court that provisions of the Philippine Mining Act of 1995 allowing certain financial or technical assistance agreements with foreign corporations were legal (Sitathan, 2005).

Exploration

Exploration activity in much of the Asia and the Pacific region increased in 2005 from the 2004 levels. Data derived from the Metals Economics Group (MEG) suggest that the 2005 proposed budget allocations for Australian exploration activity increased by 18% to \$616 million from \$522 million in 2004. Similarly, the 2005 budget for the Pacific region countries (excluding Australia) increased by 35% to \$210 million in 2005 from \$156 million in 2004 (Metals Economics Group, 2005¹). The estimate for the exploration budget for mainland Asia also increased in 2005, primarily for China (\$130 million) and Mongolia (\$123 million) from the \$186 million (combined) reported in 2004 for these two countries (Cox and Goulden, 2005¹).

Although the MEG estimates of Australian mineral exploration budgets increased in 2005 from the 2004 level, Australian activity has generally declined since 1999 in terms of Australia's share of the worldwide exploration budget. The MEG estimate for the 2005 Australian exploration budget allocation declined to 12.6% of the total world exploration budget in 2005 from a high of 18.7% in 1999. The Australian Bureau of Agricultural and Resource Economics (ABARE) reported minerals exploration expenditures for the fiscal year 2004-05 to be \$664 million, as compiled by the Australian Bureau of Statistics (Australian Bureau of Agricultural and Resource Economics, 2005a¹). Western Australia accounted for about 59% of Australian mineral exploration expenditures (Flint, 2006, p. 1). The ABARE report showed exploration for metals and other minerals was up by about 27% from 2003-04. ABARE reported that 2004-05 gold exploration accounted for 45% of the total reported Australian expenditure for metals and other minerals (down from the 57% it represented in 2003-04), nickel and cobalt exploration accounted for about 18%, iron ore exploration accounted for 16%, and copper exploration accounted for 8%. Other minerals and metals with increased expenditures in 2004-05 compared with 2003-04 levels were base metals, heavy mineral sands, and iron ore. Exploration for iron ore was in part driven by Chinese demand for the metal.

Of the 241 active mineral exploration projects considered by ABARE in 2005, 74 (31%) were new exploration projects and 84 (35%) were advanced (committed for construction) projects (Australian Bureau of Agricultural and Resource Economics, 2005b¹). Of the estimated \$10.8 billion being invested in

¹References that include a section mark (§) are found in the Internet References Cited section.

advanced projects (excluding energy projects), about \$4.3 billion was being spent on iron ore; about \$2.0 billion, on alumina; and about \$1.4 billion, on nickel projects. Based on USGS site data, early stage projects accounted for about 76% of the 2005 activity and feasibility stage projects accounted for about 11%.

The Australian States and Territories that experienced the highest level of exploration activity in 2005 were, in descending order based on the number of sites, Western Australia (56%), Queensland (14%), New South Wales (9%), South Australia (8%), Northern Territory (7%), and Tasmania (4%). Many of the noteworthy projects were in the advanced evaluation or development stage. Western Australia continued to account for the majority of exploration dollars spent in Australia for many commodities. In 2005, this State accounted for about 99% of the iron ore exploration expenditures, about 94% of nickel-cobalt, about 67% of diamond, 66% of gold, and 54% of heavy-minerals expenditures (Flint, 2006, p. 3).

The Queensland government announced a plan to spend \$15 million to conduct minerals mapping programs in the Bowen and the Surat Basins, the Drummond Basin, the Mount Isa region, and the Mount Rawdon corridor (MineBox, 2005a§). The South Australian government has allocated \$1.5 million in grants to 35 resource exploration projects through its Plan for Accelerating Exploration (PACE) initiative begun in 2004 (MineBox, 2005b§).

Native title claims issues continue to affect Australian exploration and mining. In 2005, 92 native title claims applications were processed in Australia (National Native Title Tribunal, 2005§). Reforms were announced during 2005 by the Australian Government to improve the performance of the native title system (Australian Attorney General's Department, 2005§).

Based on MEG data, the 2005 exploration budget allocation for the Pacific region and Southeast Asia was about \$210 million, up in dollar terms from the 2004 level of \$156 million, and down slightly to 4.3% of the world exploration budget from the 4.4% reported for 2004. Countries with the most activity in 2005 in terms of their exploration budget included Indonesia (29%), Papua New Guinea (23%), and the Philippines (20%) (Cox and Goulden, 2005§). Countries with the most activity in terms of exploration sites included Papua New Guinea (25%), Indonesia (23%), and the Philippines (17%). According to USGS site information, a significant portion of the interest was focused on later-stage projects, which accounted for about 41% of all exploration. Gold targets accounted for about 71% of all exploration interest in the Pacific region; copper, about 13%; and nickel, about 7% of the reported activity in 2005. Significant project activity included expansion of copper-gold reserves in the Grasberg area (Indonesia), drilling for deposit extensions at Penjom (Malaysia) and Chatree North (Thailand), and feasibility drilling at Simberi (Papua New Guinea).

Exploration activity within mainland Asia focused on China and Mongolia in 2005. MEG estimates suggest that about \$130 million was budgeted for Chinese exploration in 2005, up by 51% from the \$86 million budgeted in 2004. Similarly, MEG estimated that the 2005 mineral exploration budget in Mongolia was about \$123 million, or 23% higher than the 2004 budget of about \$100 million (Cox and Goulden, 2005§).

Mineral exploration in China has increased since the country opened its mining sector to foreign investment. In 2005, 83 foreign companies invested \$130 million in mineral exploration in China; in 2002, only 7 foreign companies invested about \$10 million in Chinese mineral exploration. Forty-five companies based in Canada, 14 based in Australia, and 7 based in the United States were exploring in China. Based on MEG estimates of spending allocations, approximately 70% of this exploration was for gold, 20% for base metals, and 10% for diamond and other minerals (Cox and Goulden, 2005§).

Chinese mining reforms continued to strengthen the country's mining and exploration sector. The large increase in demand for minerals by its industries resulted in increased domestic minerals exploration activity and a larger number of foreign mineral exploration agreements. Income from the exploration and mining license auctions in Inner Mongolia in 2005 was estimated to be \$60.5 million compared with \$45 million in 2004 (China Mining and Mineral Commodities Newsletter, 2005a). The China Finance Ministry reportedly will invest about \$4.8 million each year for the next 5 years on exploration in the Xinjiang Autonomous Region and will invest an additional \$30 million for geologic mapping (China Mining and Mineral Commodities Newsletter, 2005b). In addition, Chinese investors have signed mineral exploration agreements with foreign countries and companies to provide China with a long-term supply of minerals from abroad. Examples include agreements in Western Australia for areas rich in iron ore and heavy minerals and ones in Burma (Myanmar) for base and precious metals exploration (International Mining, 2005).

Interest in mineral exploration in Mongolia in 2005 was in large part driven by the proposed amendments to the minerals legislation of 1997 and exploration and development activity of Ivanhoe Mines Limited at its Turquoise Hill (Oyu Tolgoi) copper-gold project. Exploration activity in the minerals sector increased by 43% since 2000, and, in the first half of 2005, it increased by 10.7% from the corresponding period in 2004 (Batbileg, 2005).

Commodity Overview

Estimates for production of major mineral commodities for 2007 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 2005 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 53% of the world total in 2005. Australia, which was the world's leading producer of bauxite, accounted for 35% of the world total; it was followed by China, 10%, and India, 7%. Production of aluminum accounted for about 34% of the world total in 2005. China, which was the world's leading producer of aluminum, accounted for about 21% of the world total; it was followed by Australia, 5%; Japan, 3%; and India, 2% (table 4).

Regional production of bauxite and primary aluminum was expected to continue to grow at an average annual rate of about 3% and 6%, respectively, between 2005 and 2011 (tables 5, 6). This prediction was based on reported capacity expansions in Australia, China, India, New Zealand, and Vietnam. Regional production of secondary aluminum was expected to increase to 1.6 million metric tons (Mt) in 2011 with a slight decrease in estimated production in Japan and a substantial increase in estimated production in China (table 7).

In Australia, alumina capacity expansions included the construction of a 1.4-million-metric-ton-per-year (Mt/yr) refinery by Comalco Ltd. at Gladstone, Queensland, which was completed in 2005; a 600,000-metric-ton-per year (t/yr) refinery at Pinjarra; and a 250,000-t/yr refinery at Worsley. The latter two were scheduled to be completed in 2006. A new aluminum smelter with a capacity of 18,000 t/yr would be brought onstream by Hydro Aluminum Ltd. in 2006. In China, several companies either began or planned construction of alumina refineries in the Provinces of Guangxi, Henan, Shandong, and Shanxi. Projected bauxite production was based on the estimated alumina output less the estimated bauxite imports in years 2007-11. Estimated aluminum production was based on the China Development Plan for 11 smelter projects under construction with a total combined capacity of 1.12 Mt/yr and 10 projects undergoing feasibility study with a total combined capacity of 1.4 Mt/yr. In the State of Orissa in India, Dubai Aluminium Co. and Larsen & Toubro Ltd. planned to build a bauxite mine and a 1.4-Mt/yr alumina refinery, which was expected to be commissioned in 2009. Vedanta Resources plc started construction of a 1.4-Mt/yr alumina refinery, which was scheduled to be completed in 2007; the company was also considering building an aluminum smelter in Orissa with a first-phase capacity of 250,000 t/yr in 2009 and a second-phase capacity of 250,000 t/yr in 2010. JSW Group planned to build a 250,000-t/yr aluminum smelter at Visakhapatnam in the state of Andhra Pradesh. In Vietnam, Vietnam National Minerals Corp. planned to develop a 1.7-Mt/yr bauxite mine in Lam Dong Province by 2010; the feasibility study was approved by the Government in 2005.

Copper.—The region's production of mined copper accounted for about 21% of the world total in 2005. Indonesia was the leading regional producer followed by Australia and China. Production of primary refined copper accounted for about 35%

of the world's total output in 2005. 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 also were important producers of refined copper in the region (table 4).

Between 2005 and 2011, regional production of mined copper and of refined copper were each expected to continue to increase at an average annual rate of about 5%. This prediction was based on reported capacity expansions of mined copper in Australia, Burma, Indonesia, Laos, Mongolia, Thailand, and Vietnam, and on reported capacity expansions of refined copper in China, Burma, Japan, and Thailand (tables 8, 9).

In Australia, mine production was expected to increase because of higher output from the Tritton copper mine, which was owned by Tritton Resources, and Telfer gold/copper mine, which was owned by Newcrest Mining Ltd. Several copper mine projects were expected to start up 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 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 MIM Holdings Ltd. 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, Yulong copper mine in Xizang was expected to be brought onstream in 2009. For refined copper, 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 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. A greenfield copper refinery in Shandong was expected to produce 400,000 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 Japan, Sumitomo Metal Mining Co. Ltd. planned to gradually expand the capacity of its Toyo Smelter and Refinery to 450,000 t/yr by 2008. Capacity utilization was expected to increase as a result of more feedstock from Japanese direct equity investment in major copper mining projects abroad. In Burma, Monywa JV Co. began its expansion program to increase its capacity to 50,000 t/yr of copper cathodes in 2005 and to 125,000 t/yr in 2009. In Laos, Oxiana Ltd. of Australia completed a copper processing plant at the Khanong deposit to produce 60,000 t/yr of copper cathodes in 2006 and planned to expand plant operation to 90,000 t/yr following the discovery of additional reserves. Pan Australian Resources NL of Australia planned a 9-Mt/yr flotation plant for the Phu Kham copper-gold project to produce 50,000 t/yr of copper in 2008. In Thailand, Pan Australian Resources, in joint venture with Padaeng Industry Public Co. of Thailand, planned to develop a copper mine and to build a processing plant at their PUT 1 deposit, which could begin operations with a capacity of 30,000 t/yr of copper cathodes by 2008. Thai Copper Industries plc's 165,000-t/yr copper smelter and refinery in Rayong was expected to reach near-full capacity in

2007 or 2008. In Vietnam, Vietnam Coal and Mineral Industries Group completed construction work on a copper mine and smelter at Sin Queyen, Province of Lao Cai, to produce 42,000 t/yr of copper concentrate and 10,500 t/yr of refined copper in 2006.

Japan was one of the world's major import markets for copper concentrates and refined copper. The country imported 4.3 Mt of copper concentrates and 74,000 metric tons (t) of refined copper in 2005. China also was a significant importer of copper concentrates and refined copper. China imported about 4 Mt of copper concentrates and about 1.2 Mt of refined copper. Other important consumers of copper concentrates in the region were India and the Republic of Korea, which imported about 800,000 t and 1.4 Mt, respectively. Australia, Indonesia, Mongolia, and Papua New Guinea were the major regional suppliers of copper concentrates to China, Japan, and the Republic of Korea. Japan, the Republic of Korea, and the Philippines were the region's major suppliers of refined copper to China and other Southeast Asian countries.

Gold.—The region's production of mined gold accounted for about 32% of the world total in 2005. Australia was the leading mined-gold-producing country in the region, followed by China and Indonesia (table 10). Australia was ranked second after the Republic of Africa in the world production of gold. Papua New Guinea also was a significant gold producer in the region.

Australian gold production was expected to grow only steadily in the next few years. A number of operations, including Ballarat Goldfields' Ballarat East Mine in Victoria and BMA Gold's Twin Hills Mine in Queensland, began operation in 2005. The Bendigo Mine in Victoria, the Fortnum Mine in Western Australia, the Gully and the Union Reef Mines in Northern Territory, and the Warrior Mine in Queensland all were expected to be brought onstream in 2007. In 2005, China's production of mined gold reached a record high of 225 t. The Lannigou Mine in Guizhou was expected to start production in 2008. Gold production in Indonesia increased because of access to exceptionally high-grade ore from Freeport's Grasberg Mine, and output was expected to remain steady in the next several years. Owing to development of the Boroo Mine, Mongolia's production of mined gold increased sharply. Laos increased its mined gold operation at the Sepon gold mine by Oxiana Ltd. and at the Phu Bia heap-leach gold mine by Pan Australian Resources.

Regional production of mined gold was expected to continue to increase at an average annual rate of 5% between 2005 and 2011. This prediction was based on gradual capacity expansions mainly at the major copper and gold mines in Australia, China, Indonesia, and Mongolia. Production of mined gold in Burma, Fiji, Japan, Laos, and North Korea was expected to hold steady from 2007 to 2011 (table 10).

The region was the world's major market for gold. India was the world's leading consumer of gold. In China, continuous strong economic growth and rising urban incomes were expected to lead to higher demand for gold jewelry in the next few years. Gold demand in other countries in the region was expected to remain steady in the future.

Iron and Steel.—The region's production of iron ore was estimated to account for, in terms of gross weight, about 54% of the world total in 2005. Australia ranked second in the world

as a producer of iron ore; it was followed by China and India. The region's production of crude steel was estimated to account for about 52% of the world total. China, which was by far the world's leading producer of crude steel, accounted for about 31% of the world total. Its crude steel output was more than the combined total production of Japan, the United States, and Russia, which ranked second, third, and fourth, respectively (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 replaced Brazil as China's second ranked iron ore supplier after Australia and 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 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 3% between 2005 and 2011. This prediction was based on gradual capacity expansions in Australia, China, and India. Capacity expansion in Australia was planned at Rio Tinto plc's Yandicoogina Mine to 52 Mt/yr in late 2007. Rio Tinto also planned to develop a 22-Mt/yr iron ore mine at Hope Downs in Western Australia by 2008. 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, were expected to come onstream in 2007. In India, a large new iron ore mine at Gandhamardan Malanjtoli, State of Orissa, was scheduled to start production in 2006 (table 11).

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. Owing to the low steel consumption in the region, the ASEAN countries continued to be small steel producers.

Regional production of crude steel was expected to increase at an average annual rate of about 5% between 2005 and 2011. 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. The first-phase 5-Mt/yr capacity of Angang's 10-Mt/yr Greenfield steel plant in Liaoning Province was scheduled to be brought onstream in 2006. 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.

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 the 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 12).

Lead and Zinc.—The region's production of mined lead and zinc accounted for about 55% and 44%, respectively, of the world total in 2005 (table 4). China ranked as the world's leading producer of mined lead and zinc and accounted for about 30% and 26%, respectively, of the world total in 2005; it was followed by Australia, which accounted for more than 23% and 14%, respectively. India and North Korea were the region's other important producers of mined lead and zinc; their production levels slightly increased in 2005. 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).

China was the world's second ranked consumer of primary and secondary lead after the United States in 2005. The substantial growth in demand for lead during the past several years was owing to the continuing increase in demand for storage batteries by the growing number of automobile producers in China. In its coastal provinces, substantial increase in battery recycling capacity also led to more supply of secondary lead in 2005. Japan and the Republic of Korea were the region's other important consumers of primary and secondary lead and primary slab zinc; their demands for lead and zinc remained relatively steady during the past several years.

Regional production of mined lead and zinc was expected to increase at an average annual rate of about 2% and 5%, respectively, between 2005 and 2011. This prediction was based on reported capacity expansions in Australia, China, and India (tables 13, 19). Regional production of primary refined lead and zinc metal was expected to increase at an average annual rate of about 2% and 4%, respectively, between 2005 and 2011. This prediction was based on gradual capacity expansions mainly in Australia and China. Regional production of secondary refined lead was expected to decrease in 2007 and to increase thereafter because China's battery recycling capacity was not fully used (tables 14, 15, 20).

In Australia, gradual capacity expansions were expected to be carried out at the Cannington Mine in Queensland by BHP Minerals Ltd. and at the George Fisher and the Hilton Mines in Queensland by MIM. Teck Cominco Corp. planned to reopen its Lennard Shelf Mine in 2007, and the Black Star zinc mine in Queensland was expected to begin operation in 2006. Several smaller zinc mines were planned and could produce 1.9 Mt/yr of zinc concentrate by 2011. In India, Hindustan Zinc Co. Ltd. completed its zinc refining expansion at Chanderiya, State of Rajasthan by 170,000 t/yr to 402,000 t/yr and planned a second expansion of 170,000 t/yr to increase capacity to 572,000 t/yr. The Rampura Agucha lead and zinc mine was expanded to an output of 3.75 Mt/yr in 2005.

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. Aerhada 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 2005, and both were expected to begin production in 2006. 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.

Nickel.—The region's production of mined nickel, in terms of metal content, accounted for about 37% of the world total in 2005. Australia was the world's second ranked producer of mined nickel after Russia in 2005. Indonesia and New Caledonia, which were the region's other major producers of mined nickel, accounted for 11% and 7%, respectively, of the world total (table 4).

Japan was the world's leading consumer and importer of nickel ore and nickel matte; more than 4.5 Mt/yr of nickel ore (gross weight) was imported from Indonesia, New Caledonia, and the Philippines for the production of ferronickel. Japan imported more than 100,000 t/yr of nickel matte from Australia and Indonesia for the production of refined nickel metal and chemicals. The country was the world's second ranked producer after Russia of primary nickel, which included chemicals, ferronickel, nickel oxide sinter, and pure nickel metal. China also was a key regional consumer and importer of nickel ore, matte, and pure metal.

Regional production of mined nickel was expected to continue to increase at an average annual rate of more than 6% between 2005 and 2011. This prediction was based on reported gradual expansions of capacity and increases in productivity (table 16). In Australia, BHP Billiton's Ravensthorpe Mine was scheduled to begin operation in mid-2007 and to produce up to 50,000 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 2005-11. 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. In New Caledonia, Inco Limited of Canada was to begin construction of a new large-scale mining and hydrometallurgical nickel-cobalt extraction complex at Goro in 2007; its feasibility study was completed in 2005, but the Goro project could be delayed because of social and environmental concerns.

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 a major stainless steel 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 and was expected to grow strongly as several new mills were to begin operation. Nickel consumption in China was expected to increase substantially in the next several years and the 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 2005 (tables 17, 18). 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 Western Australia.

Regional production of mined platinum was expected to increase at an average annual rate of 7% between 2005 and 2011. This prediction was based on gradual capacity expansion of mined nickel in China (table 17). Regional production of mined palladium was expected to increase at an average annual rate of 5% between 2004 and 2011. This prediction was based on gradual capacity expansion of mined nickel in Australia and China (table 18). 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 more than one-quarter of the world total in 2005. In Australia, diamond was produced mainly from the western Kimberley region of Western Australia. The Argyle Mine, which is located in the Ellendale diamond province in 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 20% of the world total in 2005. Another diamond mine operated by Rio Tinto was the Merlin Mine in the Northern Trough in the Northern Territory of Australia.

Regional production of diamond was expected to stay in a narrow range of between 28 million and 31 million carats per year after reaching a peak level of 55 million carats in 2005 in which Australia contributed most of the output. Australia's production of diamond, however, was expected to decline sharply in 2007. At Argyle, the underground mining operation would account for 60% of its total output in 2008, and the open pit operation would gradually be shut down (table 21).

Phosphate Rock.—The region's production of phosphate rock, in terms of phosphorus pentoxide (P_2O_5) content, accounted for about 20% of the world total in 2005. China was the world's second ranked producer of phosphate rock after the United States; it was followed by 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 1%, which would lead to a shortage in the regional supply because the regional demand for phosphate rock was expected to grow at a much higher

rate than 1% 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. The country was projected to produce 12 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 (table 22).

Mineral Fuels

Coal.—The region's overall production of coal, which included anthracite, bituminous, and lignite, accounted for more than 50% of the world total in 2005. Production of anthracite coal, however, accounted for about 89% of the world total; production of bituminous coal accounted for about 59%; and production of lignite accounted for about 20%. China, which was by far the world's leading producer of anthracite and bituminous coals, accounted for about 74% and 41%, 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 2005 and 2011. This prediction was based on planned capacity expansions and newly developed mines. In Australia, the Rolleston coal mine in Queensland was completed in 2005 and was expected to produce 6 Mt/yr in 2006 and 12 Mt/yr in later years following completion of the second phase of development. Capacity expansions of the Dawson, the Ensham, the Grasree, and the Hail Creek Mines in Queensland were expected to be completed in 2007. In India, Coal India Ltd. planned to expand capacities to 364 Mt/yr in 2006 and to 504 Mt/yr in 2011 (table 23).

Uranium.—The region's uranium resources were located mainly in Australia, which ranked first in known 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 operated, namely, the Beverly, the Olympic Dam, and the Ranger Mines, and two more were under development. In 2005, The Ranger Mine was the leading producer in Australia. A number of undeveloped deposits were located in Northern Territory, 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 2005. China was thought to produce about 1,200 t/yr of mined uranium in 2005, and production was expected to increase gradually to 1,500 t/yr by 2011. Most mined uranium was enriched and consumed domestically in China. China planned to add 10 more nuclear powerplants in the coastal area during the next 10 years to relieve the electricity shortage in the area. 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 U₃O₈ 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 0.5% between 2005 and 2011. This prediction was based mainly on capacity expansions at the Olympic Dam Mine by WMC Resources Ltd. and two in situ leach operations to produce U₃O₈ at the Beverly Mine by Heathgate Resources Pty. Ltd. and at the Honeymoon Mine by Southern Cross Resources Inc. in South Australia. The Honeymoon project was approved in 2001 and could proceed before South Australia's "No New Mine" policy goes into effect (table 24).

Environment

In Japan, the amended Enforcement Order of Industrial Safety and Health Law, which largely prohibited the use of asbestos in buildings as insulation and in roof tiles, took effect in 2004. The Government decided in 2005 to draft legislation to extend relief to families of asbestos victims eligible for the same benefits as the workers' accident compensation. The Government also ratified the International Labor Organization Convention 162 on safety in the use of asbestos. The convention was expected to take effect in Japan in 2006. In Thailand, the Klity case that involved water pollution related to lead mining was still unresolved. The village of Klity in Kanchanaburi Province had long suffered from lead poisoning related to lead sediment and contamination in the Klity Creek from a lead mine that discharged waste into the creek. The cadmium contamination problem in the vicinity of Mae Tao Creek around the mine, which was operated by Padaeng Industry Public Co. Ltd., had emanated from natural sources and from human activities including industry, deforestation, forestry firing, and human settlements that had aggravated the natural process.

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TABLE 1
ASIA AND THE PACIFIC: AREA AND POPULATION IN 2005

Country	Area ¹ total (square kilometers)	Population ² total (thousands)
Afghanistan	647,500	29,929 ¹
Australia	7,687,850	20,321
Bangladesh	144,000	141,822
Bhutan	47,000	918
Brunei	5,770	361
Burma	678,500	50,519
Cambodia	181,040	14,071
China	9,596,960	1,304,500
Fiji	18,270	848
Hong Kong	1,092	6,944
India	3,287,590	1,094,583
Indonesia	1,919,440	220,558
Japan	377,835	127,956
Korea, North	120,540	22,488
Korea, Republic of	98,480	48,294
Laos	236,800	5,924
Malaysia	329,750	25,347
Mongolia	1,565,000	2,554
Nepal	140,800	27,133
New Caledonia	19,060	234
New Zealand	268,680	4,110
Pakistan	803,940	155,772
Papua New Guinea	462,840	5,887
Philippines	300,000	83,054
Singapore	692	4,351
Solomon Islands	28,450	478
Sri Lanka	65,610	19,582
Taiwan	35,980	22,894 ¹
Thailand	514,000	64,233
Timor, East	15,007	976
Vietnam	329,560	82,966
Total	29,928,036	3,589,607
World Total	148,940,000	6,345,127

¹Source: U.S. Central Intelligence Agency World Factbook 2006.

²Source: World Bank 2006, World Development Indicators Database.

TABLE 2
ASIA AND THE PACIFIC: ECONOMY IN 2005^{1,2}

Country	Gross domestic product based on purchasing power parity		Real gross domestic product growth rate (percentage)		
	Total	Per capita	2004	2005	2007
	(million dollars)	(dollars)			
Afghanistan	31,868	1,310	8.0	13.8	10.6
Australia	630,139	30,897	3.6	2.5	3.2
Bangladesh	305,640	2,011	5.9	5.8	6.3
Bhutan	3,007	3,921	8.7	6.5	11.5
Brunei	9,009	24,856	1.7	3.0	2.3
Burma	93,766	1,691	3.0	5.0	3.5
Cambodia	34,670	2,399	7.7	7.0	6.0
China	9,412,361	7,204	10.1	9.9	9.0
Fiji	5,447	6,374	4.1	2.1	1.8
Hong Kong	233,374	33,411	8.6	7.3	4.5
India	3,633,441	3,344	8.1	8.3	7.0
Indonesia	977,419	4,458	5.1	5.6	6.0
Japan	3,910,728	30,615	2.3	2.7	2.1
Korea, North ³	40,000	1,800	2.2	1.0	NA
Korea, Republic of	994,399	20,590	4.6	4.0	4.5
Laos	12,547	2,124	6.4	7.0	6.0
Malaysia	290,683	11,201	7.1	5.3	5.8
Mongolia	5,561	2,175	10.7	6.2	6.0
Nepal	39,136	1,675	3.8	2.7	3.0
New Caledonia ⁴	3,158	1,500	NA	NA	NA
New Zealand	101,685	24,769	4.4	2.2	2.1
Pakistan	404,592	2,628	7.1	7.0	6.3
Papua New Guinea	14,363	2,418	2.9	3.0	3.5
Philippines	414,705	4,923	6.0	5.1	5.6
Singapore	123,441	28,100	8.7	6.4	4.5
Solomon Islands	911	1,894	5.5	5.2	4.5
Sri Lanka	86,004	4,384	5.4	5.9	6.2
Taiwan	631,220	27,572	6.1	4.1	4.5
Thailand	544,834	8,319	6.2	4.4	5.4
Timor, East	NA	NA	1.8	3.2	4.6
Vietnam	251,609	3,025	7.7	7.5	7.4
Total	23,239,717	XX	XX	XX	XX
World total	61,078,260	XX	XX	XX	XX

NA Not available. XX Not applicable.

¹Includes data available as of April 2006. Gross domestic product listed may differ from that reported in individual country chapters owing to differences in source or date of reporting.

²Source: International Monetary Fund, World Economic Outlook Database, April 2006.

³Source: U.S. Central Intelligence Agency World Factbook 2006.

⁴Based on 2003 estimate, U.S. Central Intelligence Agency World Factbook 2006.

TABLE 3
ASIA AND THE PACIFIC: SELECTED EXPLORATION SITES IN 2005

Country	Type ¹	Site	Commodity ²	Company	Resources ^{2,3}	Activity ⁴
Australia	F	Christmas Creek/Cloud Break	Fe	Fortescue Metals Group Ltd.	625 Mt Fe	Extensive work program.
Do.	D	East Aloha/Beta Hunt	Ni	Reliance Mining Ltd.	37,600 t Ni	Do.
Do.	D	Gidgee	Au	Legend Mining Ltd.	320,000 oz Au	Extensive drilling.
Do.	P	Meekatharra/Yaloginda	Au	Mercator Gold plc	690,000 oz Au	Do.
Do.	E	Meminnie	Pb, Zn, Cu, Au	Terramin Australia Ltd.	Data not released	Do.
Do.	E	Nolans Bore	REO, phosphate	Anafura Resources NL	325,000 t REO, 1.4 Mt P ₂ O ₅	Do.
Do.	P	Norseman/Mararoa Reef	Au	Croesus Mining NL	544,800 oz Au	Do.
Do.	F	Roseby	Cu, Au	Universal Resources Ltd.	888,000 t Cu, 241,000 oz Au	Do.
Do.	E	Southdown	Fe	Grange Resources Ltd.	105 Mt Fe	Do.
Do.	E	Spinifex Ridge	Mo, Cu	Moly Mines Ltd.	154,000 t Mo, 220,000 t Cu	Do.
China	E	Boka	Au	Southwestern Resources Corp.	963,000 oz Au	Extensive work program.
Do.	D	Jinfeng	Au	Sino Gold Ltd.	2.8 Moz Au	Extensive drilling.
Do.	F	Maoling	Au	Mundoro Mining Inc.	3.8 Moz Au	Do.
Do.	E	Xietongmen	Cu, Au	Continental Minerals Corp.	Data not released	Do.
Indonesia	P	Grasberg/Deep MLZ	Cu, Au, Ag	PT Freeport Indonesia	30 Mt Cu, 86 Moz Au, 342 Moz Ag	Extensive work program.
Malaysia	P	Penjom	Au	Avocet Mining plc	990,000 oz Au	Extensive drilling.
Mongolia	D	Oyu Tolgoi	Cu, Au	Ivanhoe Mines Ltd.	14.6 Mt Cu, 17.7 Moz Au	Extensive work program.
Pakistan	F	Reko Diq	Cu, Au	Tethyan Copper Company Ltd.	6.8 Mt Cu, 9.8 Moz Au	Extensive drilling.
Papua New Guinea	F	Simberi	Au	Allied Gold Company Ltd.	2.27 Moz Au	Do.
Thailand	P	Chatree North	Au	Kingsgate Consolidated Ltd.	1.92 Moz Au	Do.

¹D--Approved for development; E--Active exploration; F--Feasibility work ongoing/completed; P--Exploration at producing site.

²Abbreviations used for commodities in this table include the following: Ag--silver; Au--gold; Cu--copper; Fe--iron ore; Mo--molybdenum; Ni--nickel; Pb--lead; REO--rare earths; Zn--zinc.

Abbreviations used for units of measure include the following: Moz--million troy ounces; Mt--million metric tons; oz--troy ounces; t--metric tons.

³Resources reported where available based on 2005 data from various sources and reflect unverified public information reported by trade journals.

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

TABLE 4
ASIA AND THE PACIFIC: PRODUCTION OF SELECTED COMMODITIES IN 2005¹

(Thousand metric tons unless otherwise specified)

Country	Metals											
	Aluminum			Copper			Gold, mine			Iron and steel		
	Alumina	Bauxite	Metal ²	Mine output, Cu content	Refined, primary	Au content (kilograms)	Ore, gross weight	Pig	Steel, crude	Mine output, Pb content	Refined, primary	Lead
Afghanistan	--	--	--	NA	--	--	--	--	--	--	--	--
Australia	17,704	59,959	2,030	918	461	263,000	261,900	6,648	7,788	767	230	
Bangladesh	--	--	--	--	--	--	--	--	20 ^e	--	--	
Bhutan	--	--	--	--	--	--	6	--	--	--	--	
Brunei	--	--	--	--	--	--	--	--	--	--	--	
Burma	--	--	--	35	35	90 ^e	--	2 ^e	25 ^e	2 ^e	1	
Cambodia	--	--	--	--	--	--	--	--	--	--	--	
China ^e	8,610	18,000	7,800	762	1,850	225,000	420,000	343,750 ³	353,240 ³	1,000	1,870	
Christmas Island ⁴	--	--	--	--	--	--	--	--	--	--	--	
Fiji	--	--	--	--	--	3,800 ^e	--	--	--	--	--	
Hong Kong ⁴	--	--	--	--	--	--	--	--	--	--	--	
India ^e	2,700	11,957 ³	898 ³	27 ³	517	--	140,000	25,500	34,000	42 ³	44 ³	
Indonesia	--	1,442	252 ^e	1,041	263	130,620	--	1,268	3,675	--	--	
Japan	350 ^e	--	1,087	--	1,228	8,318	--	83,058	112,471	3	107	
Korea, North ^e	--	--	--	12	15	6,000	5,000	900	1,070	20	9	
Korea, Republic of	--	--	--	(5)	518	266	305	27,309	47,770	(5)	181	
Laos	--	--	--	--	30	6,338	--	--	--	--	--	
Malaysia	--	--	--	--	--	4,250	950	--	5,296	--	--	
Mongolia	--	5	--	127	2	24,120	168	--	66	--	--	
Nauru ⁴	--	--	--	--	--	--	--	--	--	--	--	
Nepal	--	--	--	--	--	--	--	--	--	--	--	
New Caledonia	--	--	--	--	--	--	--	--	--	--	--	
New Zealand	--	--	373	--	--	10,583	--	590 ^e	813 ^e	--	--	
Pakistan	--	7	--	--	--	--	104	NA	700 ^e	--	--	
Papua New Guinea	--	--	--	193	--	66,700 ^e	--	--	--	--	--	
Philippines	--	--	--	16	172	37,490	--	--	550 ^e	--	--	
Singapore	--	--	--	--	--	--	--	--	--	--	--	
Solomon Islands	--	--	--	--	--	--	--	--	--	--	--	
Sri Lanka	--	--	--	--	--	--	--	--	--	--	--	
Taiwan	--	--	--	--	--	--	--	9,854	18,567	--	--	
Thailand	--	--	--	--	28	4,400	220	--	5,161	--	--	
Vietnam ^e	--	20	--	2	--	3,000	700	--	780	1	--	
Total	29,400	91,400	12,400	3,130	5,120	794,000	829,000	499,000	592,000	1,800	2,440	
Share of world total	46%	53%	34%	21%	35%	32%	54%	63%	52%	55%	65%	
United States	5,220	NA	2,480	1,140	1,210	261,000	54,400	37,200	93,300	426	143	
World total	63,400	172,000	37,000	15,000	14,700	2,470,000	1,530,000	794,000	1,130,000	3,360	3,740	

See footnotes at end of table.

TABLE 4—Continued
ASIA AND THE PACIFIC: PRODUCTION OF SELECTED COMMODITIES IN 2005¹

(Thousand metric tons unless otherwise specified)

Country	Metals											
	Manganese ore,		Mercury,		Nickel, metal content		Tin, metric tons		Tungsten,		Zinc, metric tons	
	Mn content mine output, Mn content (metric tons)	Mine output, Hg content (metric tons)	Refinery products	Mine output, Sn content	Metal, primary	Mine output, W content (metric tons)	Mine output, Zn content	Metal ²				
Afghanistan	--	--	--	--	--	--	--	--	--	--	--	--
Australia	1,500	--	189	122	2,819	594	--	1,367,000	463,000	--	--	--
Bangladesh	--	--	--	--	--	--	--	--	--	--	--	--
Bhutan	--	--	--	--	--	--	--	--	--	--	--	--
Brunei	--	--	--	--	--	--	--	--	--	--	--	--
Burma	(5)	--	(5)	--	708	30 ^e	168	78	--	--	--	--
Cambodia	--	--	--	--	--	--	--	--	--	--	--	--
China ^e	1,200	1,100	77	95	120,000	125,000	61,000	2,450,000	2,800,000	--	--	--
Christmas Island ^d	--	--	--	--	--	--	--	--	--	--	--	--
Fiji	--	--	--	--	--	--	--	--	--	--	--	--
Hong Kong ^d	--	--	--	--	--	--	--	--	--	--	--	--
India ^e	640	--	--	--	--	--	--	200,000	293,000	--	--	--
Indonesia	--	--	160	7	90,000	65,300	--	--	--	--	--	--
Japan	--	--	--	165	--	754	--	41,452	675,221	--	--	--
Korea, North ^e	--	--	--	--	--	--	600	67,000	72,000	--	--	--
Korea, Republic of	--	--	--	26	--	--	--	80	644,828	--	--	--
Laos	--	--	--	--	450 ^e	--	--	1,100 ^e	--	--	--	--
Malaysia	--	--	--	--	2,857	36,924	78 ^e	--	--	--	--	--
Mongolia	--	--	--	--	--	--	--	--	--	--	--	--
Nauru ^d	--	--	--	--	--	--	--	--	--	--	--	--
Nepal	--	--	--	--	--	--	--	--	--	--	--	--
New Caledonia	--	--	111 ^p	47	--	--	--	--	--	--	--	--
New Zealand	--	--	--	--	--	--	--	--	--	--	--	--
Pakistan	--	--	--	--	--	--	--	--	--	--	--	--
Papua New Guinea	--	--	--	--	--	--	--	--	--	--	--	--
Philippines	--	--	23	--	--	--	--	--	--	--	--	--
Singapore	--	--	--	--	--	--	--	--	--	--	--	--
Solomon Islands	--	--	--	--	--	--	--	--	--	--	--	--
Sri Lanka	--	--	--	--	--	--	--	--	--	--	--	--
Taiwan	--	--	--	11 ^e	--	--	--	--	--	--	--	--
Thailand	42	--	--	--	206	31,600	190 ^e	42,570	101,186	--	--	--
Vietnam ^e	--	--	--	--	3,500	3,500	--	32,000	--	--	--	--
Total	3,400	1,100	560	473	221,000	264,000	62,000	4,200,000	5,050,000	--	--	--
Share of world total	33%	77%	37%	35%	73%	79%	87%	44%	49%	--	--	--
United States	--	NA	--	--	--	--	--	748,000	309,000	--	--	--
World total	10,400	1,420	1,500	1,370	303,000	333,000	71,300	9,560,000	10,300,000	--	--	--

See footnotes at end of table.

TABLE 4—Continued
ASIA AND THE PACIFIC: PRODUCTION OF SELECTED COMMODITIES IN 2005¹

(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	Mica (metric tons)	Salt	Coal		Bituminous	Natural gas, dry (million cubic meters)	NA				
							Anthracite	50 ^e							
Afghanistan	NA	--	--	--	--	NA	--	--	NA	NA	--	--	--	--	
Australia	8,000 ^e	--	--	474	--	12,444	--	--	303,000	42,630	155,320	1,900 ^e	--	--	
Bangladesh	5,100 ^e	--	--	--	--	350	--	--	--	9,400 ^e	--	--	--	--	
Bhutan	170 ^e	--	--	--	--	--	--	--	85	--	--	--	--	--	
Brunei	266	--	--	--	--	--	--	--	--	13,000 ^e	70,000 ^e	--	--	--	
Burma	543	--	--	--	--	35 ^e	--	--	--	11,648	8,133	--	--	--	
Cambodia	--	--	--	--	--	40 ^e	--	--	--	--	--	--	--	--	
China ^e	1,068,850 ³	2,700,000	720,000	4,700	--	46,610 ³	245,000	1,850,000	42,000	42,000	1,350,000	--	--	--	
Christmas Island ⁴	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Fiji	100 ^e	--	--	--	--	--	--	--	--	--	--	--	--	--	
Hong Kong ⁴	NA	--	--	--	--	--	--	--	--	--	--	--	--	--	
India ^e	130,000	10,900	130,000	380	3,700	15,503 ³	--	333,000	27,000	248,000	--	--	--	--	
Indonesia	33,917	--	--	--	--	680 ^e	50 ^e	142,920	53,000 ^e	352,000	--	--	--	--	
Japan	69,629	--	--	--	--	1,227	--	1,146	3,265	5,774	--	--	--	--	
Korea, North ^e	5,700	12,500	32,000	1,200	--	500	16,500	--	--	--	--	--	--	--	
Korea, Republic of	51,391	--	39	--	36,623	379	2,832	--	--	--	--	--	--	--	
Laos	350 ^e	--	--	--	--	15 ^e	--	--	--	--	--	--	--	--	
Malaysia	17,860	--	--	--	4,542	--	--	789	59,111	267,720	--	--	--	--	
Mongolia	112 ^e	367,000	--	--	--	2	--	8,256	--	201	--	--	--	--	
Nauru ⁴	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Nepal	290 ^e	--	--	--	--	2	--	9	--	--	--	--	--	--	
New Caledonia	119 ^P	--	--	--	--	--	--	--	--	--	--	--	--	--	
New Zealand	1,050 ^e	--	--	--	--	100 ^e	--	5,267	3,911	7,032	--	--	--	--	
Pakistan	10,600 ^e	1,040	--	3	--	1,662	--	3,367	34,000	24,119	--	--	--	--	
Papua New Guinea	--	--	--	--	--	--	--	--	1,365	16,800	--	--	--	--	
Philippines	15,494	--	--	--	--	421	--	3,165	--	208 ^e	--	--	--	--	
Singapore	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Solomon Islands	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sri Lanka	1,500 ^e	--	3,000 ^e	--	1,700 ^e	80 ^e	--	--	--	--	--	--	--	--	
Taiwan	19,891	--	--	--	8,608	--	--	--	490 ^e	203	--	--	--	--	
Thailand	37,872	295	--	--	--	1,100	--	--	23,690	41,320	--	--	--	--	
Vietnam ^e	29,000 ³	3,000	--	--	--	1,400	32,800 ³	--	6,340 ³	135,578 ³	--	--	--	--	
Total	1,510,000	3,090,000	885,000	6,800	55,200	82,600	297,000	2,650,000	331,000	2,680,000	--	--	--	--	
Share of world total	65%	56%	87%	49%	18%	33%	89%	59%	12%	10%	--	--	--	--	
United States	101,000	--	--	W	99,200	46,500	1,550	949,000	537,000	1,890,000	--	--	--	--	
World total	2,310,000	5,570,000	1,010,000	13,700	306,000	249,000	333,000	4,510,000	2,820,000	27,300,000	--	--	--	--	

See footnotes at end of table.

TABLE 4—Continued
ASIA AND THE PACIFIC: PRODUCTION OF SELECTED COMMODITIES IN 2005¹

³Estimated; estimated data, U.S. data, and world totals are rounded to no more than three significant digits. ⁴Preliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; not included in world total. -- Zero or zero percent.

¹Totals may not add due to independent rounding. Percentages are calculated on unrounded data. Table includes data available as of March 2007.

²Primary and secondary production.

³Reported figure.

⁴Not included as a separate chapter in USGS Minerals Yearbook 2005, volume III.

⁵Less than 1/2 unit.

TABLE 5
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED BAUXITE MINE PRODUCTION, 1990-2011¹

(Thousand metric tons, gross weight)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	41,400	42,700	53,800	59,960	57,000	60,000	63,000
China	2,400	5,000	9,000	18,000	20,000	22,000	25,000
India	4,850	5,240	7,560	11,957	14,000	16,000	18,000
Indonesia	1,210	899	1,150	1,442	1,700	1,900	2,100
Malaysia	398	184	123	5	--	--	--
Other	3	3	9	27	25	25	1,700
Total	50,300	54,000	71,600	91,400	93,000	100,000	110,000

^cEstimated. -- Negligible or no production.

¹Historic data, 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 ALUMINUM METAL PRODUCTION, 1990-2011¹

(Thousand metric tons)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	1,230	1,300	1,770	1,903	2,200	2,500	3,500
China	847	1,750	2,800	7,800	9,400	10,000	10,000
India	433	537	644	898	890	910	930
Indonesia	186	220	160	252	240	250	250
New Zealand	260	273	328	352	350	350	450
Other	34	18	7	7	410	610	710
Total	2,990	4,100	5,710	11,200	13,500	14,500	16,000

^cEstimated.

¹Historic data, 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 SECONDARY ALUMINUM METAL PRODUCTION, 1990-2011¹

(Thousand metric tons)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
China	7	12	175	300	350	400	600
Japan	1,100	1,200	1,210	1,035	1,000	1,000	1,000
Total	1,110	1,210	1,390	1,340	1,350	1,400	1,600

^cEstimated.

¹Historic data, 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 COPPER MINE PRODUCTION, 1990-2011¹

(Metal content in thousand metric tons)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	327	398	829	918	950	1,050	1,200
China	285	445	593	762	850	900	950
India	58	47	32	29	28	26	26
Indonesia	164	444	1,010	1,041	725	900	1,100
Mongolia	124	122	125	126	130	190	300
Papua New Guinea	170	213	203	190	210	200	200
Philippines	182	108	130	20	16	16	16
Other	25	26	44	85	140	250	380
Total	1,340	1,800	2,970	3,170	3,050	3,530	4,170

^cEstimated.

¹Historic data, 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 REFINED COPPER METAL PRODUCTION, 1990-2011¹

(Thousand metric tons)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	274	248	488	461	550	700	750
China	560	1,080	1,370	2,600	3,000	3,300	3,600
India	42	40	243	517	700	750	800
Indonesia	--	--	158	262	240	240	300
Japan	1,010	1,190	1,440	1,228	1,600	1,700	1,700
Korea, Republic of	186	235	468	520	530	530	530
Other	161	187	195	252	400	450	550
Total	2,230	2,980	4,360	5,840	7,000	7,700	8,200

^cEstimated. -- Negligible or no production.

¹Historic data, 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 GOLD MINE PRODUCTION, 1990-2011¹

(Metal content in kilograms)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	244,000	254,000	269,000	263,000	270,000	300,000	350,000
China	100,000	140,000	180,000	225,000	230,000	250,000	260,000
Indonesia	11,200	64,000	125,000	130,620	195,000	200,000	210,000
Japan	7,300	9,190	8,400	8,300	8,200	8,200	8,200
Korea, North	5,000	5,000	6,600	6,000	6,000	6,000	6,000
Mongolia	1,000	4,500	11,800	24,120	26,000	30,000	33,000
New Zealand	4,630	12,100	9,880	10,583	11,000	12,000	13,000
Papua New Guinea	31,900	51,700	74,500	66,700	72,000	74,000	80,000
Philippines	24,600	27,000	36,500	37,490	38,900	38,000	48,000
Other	9,940	9,330	17,400	25,306	30,500	32,100	31,800
Total	440,000	577,000	739,000	797,000	888,000	949,000	1,040,000

^cEstimated.

¹Historic data, 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 BENEFICIATED IRON ORE PRODUCTION, 1990-2011¹

(Metal content in thousand metric tons)

Country	Average ore grade (% Fe)	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	64	69,800	88,700	107,000	175,300	200,000	210,000	220,000
China	64	55,000	82,300	73,600	134,000	150,000	160,000	165,000
India	64	34,400	41,700	48,600	90,000	92,000	94,000	96,000
Korea, North	NA	4,700	2,000	1,100	1,400	1,500	1,500	5,000
Other	XX	986	1,140	1,350	1,606	1,980	2,000	2,000
Total	XX	165,000	216,000	232,000	402,000	445,000	468,000	488,000

^cEstimated. NA Not available. XX Not applicable.

¹Historic data, 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 CRUDE STEEL PRODUCTION, 1990-2011¹

(Thousand metric tons)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	6,670	8,450	7,300	7,790	10,000	10,000	20,000
China	66,100	95,400	129,000	353,240	440,000	460,000	510,000
India	15,000	22,800	26,900	34,000	35,000	39,000	42,000
Japan	110,000	102,000	106,000	112,470	113,000	113,000	113,000
Korea, Republic of	23,100	36,800	43,100	47,770	49,000	51,000	51,000
Malaysia	1,200	2,450	2,430	5,300	5,400	5,500	5,500
Taiwan	9,750	11,600	17,300	18,570	21,000	21,500	22,000
Thailand	685	2,130	2,100	5,160	5,200	5,400	6,000
Other	13,400	14,900	6,030	7,700	8,800	9,300	9,600
Total	246,000	297,000	340,000	592,000	687,000	715,000	779,000

^cEstimated.

¹Historic data, 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 LEAD MINE PRODUCTION, 1990-2011¹

(Metal content in metric tons)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	570,000	455,000	739,000	767,000	800,000	800,000	810,000
China	315,000	520,000	660,000	1,000,000	1,000,000	1,100,000	1,200,000
India	23,200	34,000	28,900	42,000	43,000	44,000	45,000
Japan	18,700	9,660	8,840	3,437	--	--	--
Korea, North	80,000	75,000	9,000	20,000	20,000	20,000	20,000
Vietnam	--	1,000	1,000	1,200	1,000	1,000	1,000
Other	24,900	12,100	16,800	2,000	4,000	4,000	4,000
Total	1,030,000	1,110,000	1,460,000	1,840,000	1,870,000	1,970,000	2,080,000

^cEstimated. -- Negligible or no production.

¹Historic data, 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 PRIMARY REFINED LEAD PRODUCTION, 1990-2011¹

(Thousand metric tons)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	212	215	223	230	240	250	266
China	260	458	998	1,870	1,900	2,000	2,200
India	29	62	57	44	50	55	60
Japan	205	148	130	107	95	95	95
Korea, North	70	65	7	9	9	9	9
Korea, Republic of	61	130	171	174	175	175	175
Other	2	10	4	1	--	--	--
Total	839	1,090	1,590	2,440	2,470	2,580	2,810

^cEstimated.

¹Historic data, 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 SECONDARY REFINED LEAD PRODUCTION, 1990-2011¹

(Thousand metric tons)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	17	26	28	33	40	40	40
China	36	150	102	520	400	450	500
India	17	28	21	25	28	30	30
Japan	122	140	182	167	195	200	200
Malaysia	16	34	35	40	42	42	42
Philippines	12	17	16	30	30	30	30
Thailand	16	11	24	58	58	58	58
Other	16	25	12	12	12	12	12
Total	252	431	420	885	800	860	910

^cEstimated.

¹Historic data, 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 NICKEL MINE PRODUCTION, 1990-2011¹

(Metal content in metric tons)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	67,800	103,000	167,000	189,000	230,000	250,000	350,000
China	33,000	41,800	50,300	77,000	79,000	81,000	82,000
Indonesia	68,300	88,200	98,200	160,000	160,000	180,000	180,000
New Caledonia	85,100	120,000	126,000	111,039	125,000	150,000	160,000
Philippines	15,800	15,100	17,400	22,560	35,000	35,000	27,000
Total	270,000	368,000	459,000	560,000	629,000	696,000	799,000

^cEstimated.

¹Historic data, 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 PLATINUM MINE PRODUCTION, 1990-2011¹

(Metal content in kilograms)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	100	100	171	200	230	230	300
China	260	300	650	700	850	900	1,000
Total	360	400	821	900	1,080	1,130	1,300

^cEstimated.

¹Historic data, 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 PALLADIUM MINE PRODUCTION, 1990-2011¹

(Metal content in kilograms)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	400	400	812	800	950	1,000	1,000
China	130	170	350	450	500	550	650
Total	530	570	1,160	1,250	1,450	1,550	1,650

^cEstimated.

¹Historic data, 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 ZINC MINE PRODUCTION, 1990-2011¹

(Metal content in thousand metric tons)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	933	937	1,420	1,367	1,600	1,800	2,500
China	619	1,010	1,780	2,450	2,300	2,500	2,600
India	74	155	144	200	210	220	230
Japan	127	95	64	41	10	--	--
Korea, North	230	150	60	67	67	70	70
Thailand	11	23	27	43	40	40	40
Vietnam	10	14	13	32	40	50	50
Other	2	1	--	26	62	62	63
Total	2,010	2,390	3,510	4,230	4,330	4,700	5,600

^cEstimated.

¹Historic data, 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 ZINC METAL PRODUCTION, 1990-2011¹

(Thousand metric tons)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	303	320	490	463	600	700	800
China	550	1,080	1,980	2,800	3,000	3,200	3,300
India	79	171	201	293	460	540	630
Japan	732	711	699	675	700	700	700
Korea, North	200	150	65	72	70	70	100
Korea, Republic of	248	279	474	645	680	700	700
Thailand	63	56	101	101	110	120	120
Total	2,180	2,770	4,010	5,050	5,600	6,000	6,350

^cEstimated.

¹Historic data, 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 DIAMOND PRODUCTION, 1990-2011¹

(Thousand carats)

Country (average % gem grade)	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	34,600	40,700	26,600	54,703	28,000	30,000	30,000
China	1,000	1,130	1,150	100	100	100	100
India	15	21	16	16	18	19	20
Indonesia	23	22	23	30	30	30	30
Total	35,600	41,900	27,800	54,800	28,100	30,100	30,200

^cEstimated.

¹Historic data, 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 PHOSPHATE ROCK PRODUCTION, 1990-2011¹

(P₂O₅ content in thousand metric tons)

Country	1990	1995	2000	2005	2007 ^c	2009 ^c	2011 ^c
Australia	--	1	225	220	300	300	300
China	6,400	7,960	5,820	9,130	9,500	9,600	9,700
India	181	360	336	355	360	370	380
Philippines	3	8	109	100	100	100	100
Vietnam	96	178	236	240	240	250	250
Other	291	379	374	261	242	203	178
Total	6,970	8,890	7,100	10,300	10,700	10,800	10,900

^cEstimated. -- Negligible or no production.

¹Historic data, estimated data, and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 23
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED SALABLE COAL PRODUCTION, 1990-2011¹

(Thousand metric tons)

Country	1990	1995	2000	2005	2007 ^e	2009 ^e	2011 ^e
Australia	199,000	194,000	313,000	370,000	352,000	355,000	456,000
China	1,010,000	1,310,000	957,000	2,150,000	2,250,000	2,400,000	2,600,000
India	226,000	290,000	335,000	360,000	370,000	437,000	504,000
Indonesia	10,000	40,000	77,200	142,970	160,000	170,000	180,000
Japan	7,980	6,260	3,130	1,146	--	--	--
Korea, North	68,000	70,000	22,500	23,500	26,000	26,000	26,000
Korea, Republic of	17,200	5,720	4,170	2,832	3,400	3,400	3,400
Mongolia	7,160	5,020	5,190	8,256	8,000	10,000	12,000
New Zealand	2,580	3,450	3,590	5,267	5,600	5,600	5,700
Pakistan	2,730	3,000	3,120	3,367	3,380	3,400	3,440
Philippines	1,190	1,200	1,300	3,165	3,200	3,500	3,500
Thailand	14,200	18,400	17,786	20,643	21,000	22,000	23,000
Vietnam	4,020	8,350	11,600	32,800	3,300	35,000	40,000
Other	320	517	837	1,588	1,140	1,150	1,140
Total	1,570,000	1,960,000	1,760,000	3,130,000	3,210,000	3,470,000	3,860,000

^eEstimated. -- Negligible or no production.

¹Historic data, estimated data, and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 24
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED URANIUM MINE PRODUCTION, 1990-2011¹

(U₃O₈ content in metric tons)

Country	1990	1995	2000	2005	2007 ^e	2009 ^e	2011 ^e
Australia	3,530	3,700	7,580	11,218	9,000	9,100	9,200
China	100	500	1,000	1,200	1,500	1,500	1,500
Total	3,630	4,200	8,580	12,400	10,500	10,600	10,700

^eEstimated.

¹Historic data, estimated data, and totals are rounded to no more than three significant digits; may not add to totals shown.