

# ASIA AND THE PACIFIC

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The Asia and Pacific region includes 40 countries and territories. The total land area of the region is approximately 29 million square kilometers, which is about three times that of the United States. In 2001, the region's population of 3,436 million accounted for about 56% of the world's population and was about 12 times that of the United States. China and India, which were the world's two most populous countries, accounted for about 67% of the regional population and about 38% of the world's population. In 2001, Japan had the world's second largest economy, following the United States, and China had the world's fastest growing economy. Australia, China, and India dominated the region's mineral resource sectors in exploration, mining, processing, and trade.

Australia was one of the world's significant minerals producers with large resources of bauxite, coal, cobalt, copper, diamond, gold, iron ore, lead, lithium, manganese, mineral sands, nickel, silver, tantalum, uranium, and zinc. China also was a significant world minerals producer with 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 was a significant minerals producer with large resources of barite, bauxite, chromium, iron ore, manganese, rare-earth elements, and salt. Other important regional minerals producers with large resources were Indonesia (coal, copper, gold, nickel, and tin), Japan (iodine), Papua New Guinea (copper and gold), the Philippines (gold and nickel), and Thailand (feldspar and gypsum). Despite large regional resources of nonfuel minerals and mineral fuels in Australia, China, and India and in such Asian countries as Indonesia, Mongolia, and Malaysia, the regional markets for a wide variety of minerals and mineral fuels, which included coal and hydrocarbons, were insufficient. The Middle East and North America supplied a large portion of the Asia and Pacific regional requirements for coal and hydrocarbons. North America and South America supplied a substantial portion of the regional raw material requirements for ferrous and nonferrous metals.

China and Japan were the two major markets for crude and processed minerals in the region. In terms of quantity, Japan was the largest consumer in the region. In terms of growth, China was the strongest consumer in the region. India, the Republic of Korea, Taiwan, and some of the countries in Southeast Asia, which included Indonesia, Malaysia, Singapore, Thailand, and Vietnam, were additional important consumers in the region for mineral products, such as ferrous and nonferrous metals and industrial minerals, especially cement.

To promote trade and investment in the region, the Asia-Pacific Economic Cooperation (APEC) organization was established in November 1989. The APEC included all the members of the Association of Southeast Asian Nations

(ASEAN)—Brunei, Indonesia, Malaysia, the Philippines, Singapore, and Thailand—plus Australia, Canada, Chile, China, Hong Kong, Japan, the Republic of Korea, Mexico, New Zealand, Papua New Guinea, Taiwan, and the United States. The APEC economies had a combined gross domestic product (GDP) of about \$19.3 trillion and 47.5% of world trade in 2001 (Asia-Pacific Economic Cooperation, 2003<sup>1</sup>).

To increase the competitive edge of the ASEAN as a production base geared for world markets, the ASEAN Free Trade Area (AFTA) was formally established at the fourth ASEAN Summit in Singapore in 1992. The six original members of the AFTA were the Pacific Basin nations of Brunei, Indonesia, Malaysia, the Philippines, Singapore, and Thailand. In 2001, the AFTA had a total of 10 members, with Burma, Cambodia, Laos, and Vietnam joining since 1992. In November, the ASEAN and China agreed to undertake an initiative to establish a bilateral free trade area in 2010. The free trade area to be created by the agreement would have about 1.7 billion consumers, a combined GDP of approximately \$2 trillion, and an annual trade value of \$1.23 trillion (Taiwan Research Institute, 2002<sup>§</sup>).

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- For mineral production statistics—
  - Brunei—Prime Minister's Department, Petroleum Unit;
  - Cambodia—Ministry of Industry, Mines and Energy, General Department of Mineral Resources;
  - India—Indian Bureau of Mines;
  - Indonesia—U.S. Embassy, Jakarta;
  - Japan—Ministry of Economy, Trade and Industry, Research and Statistics Department;
  - Republic of Korea—Korean Institute of Geoscience & Mineral Resources;
  - Laos—Department of Geology and Mines;
  - Malaysia—Minerals and Geoscience Department;
  - Mongolia—Mineral Resources Authority;
  - Thailand—Ministry of Industry, Department of Mineral Resources; and
  - Vietnam—Ministry of Industry, Research Institute of Geology and Mineral Resources.
- For basic economic data—the Asian Development Bank in Manila, Philippines; and the International Monetary Fund and the World Bank in Washington, District of Columbia.

<sup>1</sup>References that include a section twist (§) are found in the Internet References Cited section.

- For exploration and other mineral related information—
  - the Australian Bureau of Statistics (ABS) in Canberra, Australia;
  - the Metals Economics Group (MEG) in Halifax, Nova Scotia, Canada; and
  - the Fraser Institute in Vancouver, British Columbia, Canada.

Estimates for production of major mineral commodities for 2002 and beyond have been based upon supply-side assumptions, such as announced plans for increased production/new capacity construction and bankable feasibility studies. No consideration of any demand-side factors, such as price and economic growth, were made.

## General Economic Conditions

In 2001, the economic performance of the Asia and Pacific region in terms of real GDP growth averaged about 5.5%, which was better than the 1.4% average for the world as a whole. Within the region, the economic performance of such less developed countries as Cambodia, China, Indonesia, Laos, and Vietnam was generally better than such developed countries as Australia and Japan and such newly industrializing economies as Hong Kong, Singapore, the Republic of Korea, and Taiwan. Although China was one of the poorer countries, with a low per capita gross national product (GNP), its real GDP growth in 2001 was the highest in the region. Although Japan was the richest economy with the highest per capita GNP in the region, its real GDP growth was the sixth lowest in the region in 2001.

According to the Asian Development Bank, the developing countries in Asia would continue to perform better than Asia's developed and newly developed countries. Among developing countries, China's economy was projected to grow by 7.4% in 2002 and by 7.5% in 2003, and Vietnam's by 5.7% in 2002 and by 6.2% in 2003. Among the newly developed countries, the Republic of Korea's economy was projected to grow by 6.0% in 2002 and by 5.8% in 2003, and Taiwan's economy, by 3.0% in 2002 and by 4.0% in 2003. Among the Southeast Asian countries, Malaysia's economy was projected to grow by 4.5% in 2002 and 5.0% in 2003; the Philippines' economy, by 4.0% in 2002 and 4.5% in 2003; Thailand's economy, by 3.8% in 2002 and 4.0% in 2003; and Indonesia's economy, by 3.2% in 2002 and 4.4% in 2003. The economies of the Pacific countries (excluding Australia and New Zealand) were projected to perform poorly, especially that of the Solomon Islands whose growth was projected to be -6% in 2002 and only 2% in 2003. Papua New Guinea's economy was projected to have no growth in 2002 and to grow by only 1.1% in 2003.

## Investment Interest and Political Risk

The Indian Government approved applications that involved total foreign direct investment of more than \$700 million in the mining sector. India allowed automatic approval of 100% foreign equity investment in prospecting, mining, processing, and metallurgy, except in diamond and precious stones. Above 74%, foreign investment in diamond and precious stones had to be approved by the Government.

The major investments in Indochina's mining sectors included the Monywa open pit, heap leach operation in Burma. The operation was 50% owned by Ivanhoe Mines Ltd. of Canada, which brought the Burmese Sabetaung and Kyisintaung (S&K) deposits onstream in 1998 for about \$90 million. Ivanhoe also planned to invest additional millions to bring Burma's 125-metric-ton-per-year (t/yr) Letpadaung electrowon copper deposit onstream within 4 years. An \$80 million copper-gold project was being planned by Oxiana Resources NL of Australia at the Khanong and Sepon deposits in Laos. Additionally, Kingsgate Consolidated NL of Australia planned to invest \$1.3 million in the next 2 years to expand the processing plant at its \$35 million Chatree Mine in Thailand. The state-owned Vietnam National Mineral Corp. planned to invest \$70 million, which included a \$42 million loan from China, at its Sin Quyen copper deposit within the next 2 years.

## Legislation

To develop the necessary industries to strengthen the private sector economy, the Government of Brunei enacted the Investment Incentive Order 2001 and Income Tax Relief in July. The new law and regulations provided guidelines in granting pioneer status to industries and tax relief for foreign and local investment and extended the tax relief period.

In 1999, the Indonesian Parliament passed Regional Political Autonomy, Fiscal Decentralization, and the Forest Law, which began to be implemented on January 1, 2001. Mining companies were confused about the connection between Regional Political Autonomy and the General Mining Law, enacted in 1967. In practice, there was no legal basis to protect mining operations, particularly on new investment, in Indonesia. Foreign investors refused to have their contract of work signed by the Regional Government. The Forest Law prohibited mineral exploration and mining in protected forests that covered about 40% of the country's land mass. In addition, many foreign investors were concerned about political stability and deterred new investments. The Government issued regulation No. 75/2001 to bridge the transition period pending the issuance of a new mining law. As many as 150 mining projects, which were valued at about \$10 billion capital investment, were on hold temporarily. Since 1998, investment value in the mining sector has continued to decline. In 2001, mining investment was \$43 million.

During the Asian financial crisis, the Malaysian Government imposed a stringent capital control to prevent foreign investors from fleeing the Malaysian stock market in 1998. A 30% exit tax was imposed in February 1999, reduced to 10% in September 1999, and dropped on May 2, 2001.

## Exploration

Australia's ability to sustain a healthy minerals and energy sector and to bolster the sector's contribution to the national economy remained heavily dependant upon investments in minerals and energy exploration programs. Strong growth in the Australian minerals sector in the late 1990s was borne by strong investment in exploration programs conducted more than a decade earlier. In financial year 2000-01 (July 1-June 30), total Australian minerals exploration expenditures increased

slightly following 3 years of sharp decreases; those of 1999-2000 fell to their lowest levels in real terms since those of 1991-92. Although expenditures for base-metals exploration increased by about 5% in 2000-01, exploration monies for gold declined in 2000-01 for the fourth consecutive year. In real terms, exploration expenditures for gold decreased by 52% from that of their peak in 1996-97.

Exploration budget allocations for Australia in 2001 reported by the MEG reflected a continuing decline in budgeted exploration in U.S. dollar terms. The MEG reported a decline of 14% between 2000 and 2001, and the ABS reported a 2% decline from 1999 to 2000. These declines are attributed to continued low world commodity prices, increased competition for capital, a deteriorating exploration discovery record, and low profitability levels for international mining companies. Native Title issues also continued to be a dominant issue during 2001 in Australia, which adversely affected mineral exploration and development in. A 55% decrease in exploration expenditures was reported between 1997 and 2000, a trend that was expected to continue through 2001.

On the basis of ABS data, the greatest amount of budgeted exploration expenditures, principally for gold and nickel, was allocated in Western Australia. According to the ABS, gold accounted for 62% (\$268 million) of Western Australia's mineral exploration expenditure of \$432 million in 2000. Exploration allocations for base-metal targets in Western Australia in 2000 were reported to be \$58 million. Most was for nickel prospecting; copper-lead-zinc exploration was reported to be stagnant or declining during the year. Western Australia accounted for most of the \$20 million reported for Australian iron ore allocations. In 2000, expenditures for diamond exploration totaled \$16 million; activity was centered in the Kimberly region.

Exploration for heavy mineral sands in the Murray Basin region of southern Australia accelerated in the past 5 years. The region covers parts of New South Wales, South Australia, and Victoria and potentially contains 67 million metric tons (Mt) of coarse-grained heavy mineral sands. Development of the Wemen project during 2000 by the RZM Pty. Ltd.-Sons of Gwalia Ltd. joint venture and the release of a joint government-industry assessment of mineral sands potential in the region increased exploration in the area. Since 1995, exploration has led to the resource estimation of 30 deposits controlled by four Australian companies. Active drilling continued to delineate additional mineral resources in the Murray Basin region. If development continues, then the region could surpass Western Australia as Australia's largest producer of mineral sands within years. Mineral sands deposits in the Murray Basin have tended to have higher proportions of rutile and zircon than those of Western Australia, which gives them a higher value. The higher value would potentially offset part of the higher costs associated with transporting the concentrates the additional distance to port.

More than one-half of the reported Australian exploration activity for 2001 was attributed to Western Australia, on the basis of site data compiled by the USGS. Companies also reported significant interest in exploring for minerals in New South Wales and Queensland with limited activity in other States. Gold accounted for approximately 32% of the reported Australian exploration projects. Base metals, primarily nickel,

accounted for about 25%; mineral sands, 16%; and diamond, about 9%. Exploration for gold was concentrated in Western Australia, Queensland, and New South Wales. Nickel exploration was focused in Western Australia, and mineral sands exploration was concentrated in the Murray Basin, primarily in New South Wales and Victoria. Approximately 20% of the Australian activity had reached the feasibility level, and 11% involved developing or producing deposits.

Across Australia, Native Title issues continued to be the dominant issue that affected exploration and mining. In 2001, the Kalkadoon Indigenous Land Use Agreement was signed between the Australian Aboriginal Kalkadoon people, MIM Holdings Ltd., Anglo American Plc, and the Government of Queensland. The agreement allowed mineral exploration in northwestern Queensland, which had been suspended, to proceed immediately after registration with the National Native Title Tribunal.

Budget allocations in 2001 for mineral exploration in the Pacific region and Southeast Asia decreased substantially to \$133 million from \$199.2 million largely owing to reduced investor confidence, perceived problems with governmental policy related to regional autonomy laws, continued unrest in the region, and other fears directly related to antimining sentiment (Metals Economics Group, 2002). Spending allocations amounted to 6.7% of world exploration. Much of the activity in the region, with the exception of Southeast Asia, took place at sites with previously established investment. A noted greenfield exploration success, however, was at the Boyongan copper-gold deposit in the Philippines where a sizable drilling project continued in spite of civil strife in the area. Companies, such as Newmont Mining Corp. of the United States, have suspended exploration at new sites across Indonesia, primarily because of unrest in the region. Aggressive drilling programs were reported in Southeast Asia at the Sepon gold-copper deposit in Laos and the Nui Phao tungsten deposit in Vietnam.

In Burma, Ivanhoe was exploring for gold in the Modi Taung area of Mandalay and for copper at the Letpadaung deposit in the Monywa area of Sagaing Division.

In Laos, Oxiana Resources planned to develop the Sepon Mine in 2002 after a \$30 million loan package was secured from the International Finance Corp. and to explore for copper at the Khanong deposit near the Sepon Mine. Pan Australian Resources NL of Australia planned to explore for copper and gold at the Long Chieng Track and Phu Kham deposits.

In Thailand, Pan Australian Resources completed a feasibility study for the development of the Puthep copper mine in Loei Province.

In Vietnam, Tiberon Minerals Ltd. of Canada was exploring a polymetallic deposit (tungsten-gold-copper-bismuth-fluorite) at Nui Phao, and Olympus Pacific Minerals Inc. of Canada was exploring for gold at Phuoc Son near Danang.

From data compiled by the USGS, exploration activity on the basis of the number of sites being explored in 2001 was greatest in Indonesia, the Philippines, and Papua New Guinea, and was mostly associated with established or developing mining areas. In 2001, gold targets accounted for just under one-half of exploration activity in the Pacific region, and base-metal targets accounted for more than 40% of reported activity.

China's Ministry of Land and Resources (MLR) planned a long-term program for development in western China. The MLR designated 10 major development areas and provided preferential incentives for companies to explore and mine in each area. In 2001, China invested \$7.8 billion in the minerals and fossil fuels sectors. Oil and gas accounted for 78% of the investment; coal, 14%; nonferrous minerals, 2%; ferrous minerals, 1%; industrial minerals, 1%; and other, 4%. Investment in new projects accounted for 34% of the total value. The country also invested \$135 million on geologic prospecting, of which about 63% was targeted for greenfield projects.

## Environment

To implement the policy of reduce, reuse, and recycle to achieve the goals of sustainable development in the 21st century and to create a recycling-oriented economy, the Japanese Government enacted the Designated Household Appliance Law in 2001. The new law covered air conditioners, television sets that use cathode-ray tubes, electric refrigerators, and electric washing machines.

In Malaysia, the State Government of Perak approved a proposal by the Malaysian Nature Society to convert a tract of old tin mining land in Batu Gajah, Perak, into a recreation and conservation park.

## Trade

In the past two decades, China pursued a policy of free trade and economic cooperation with other countries of the world. At the end of 2001 after 15 years of negotiation, China officially became a member of the World Trade Organization (WTO). Of all major countries and territories in the Asia and Pacific region, North Korea and the Republic of Korea have not participated in the world's preferential trade agreements.

Growth in exports has grown faster than that of the GDP in the Asia and Pacific region. Export value of manufactured products accounted for about 75% of the total, and the share of agricultural and mining products was about 25%. The growth in exports of manufactured products has consistently surpassed growth in exports of agricultural and mining products. International trade has become more important to the Asian and Pacific countries. Japan, the European Union, and the United States accounted for more than 50% of exports from China, Hong Kong, the Republic of Korea, and Taiwan. Owing to weak demand in the world, the growth in value of the China's exports accelerated by only 7.5% compared with that of 2000, and Hong Kong, the Republic of Korea, and Taiwan posted declines in 2001. Exports from the Philippines and Singapore also declined, but exports from other Southeast Asian countries expanded slightly (Asian Development Bank, 2002, p. 65-68).

## Commodity Review

### Metals

**Bauxite and Aluminum.**—Australia, which was the world leader in the production of bauxite for the 31st consecutive year

in 2001, produced about 36% of world output. Australia, which ranked fifth in the world, produced about 8% of the world's total aluminum metal. Privately owned Aldoga Aluminium Pty. Ltd. secured enough power to operate its proposed 450,000-t/yr \$1.5 billion aluminum smelter to be built near Gladstone, Queensland. Comalco Ltd. (a wholly owned subsidiary of Rio Tinto Plc) announced plans to increase bauxite production from its Weipa operations in Queensland and to decrease the company's aluminum production deficiency at its Gladstone Refinery. The French-based aluminum group Pechiney purchased an additional 15.5% interest in the 444,000-t/yr Tomago aluminum smelter in New South Wales; this increased its holdings to 51.55% and made it the largest shareholder.

China became one of the largest aluminum-producing countries in the world. The State Economic and Trade Commission projected that the country would produce 5.5 Mt and consume 3.8 Mt of aluminum by yearend 2005. Metal analysts believed that the estimation was low. In 2001, 22 projects were underway that will add more than 1 Mt to existing capacity in 2003. If all approved projects are built and completed, then China will have output capacity of more than 7 Mt of aluminum by 2005 and could overtake Russia and the United States to become the largest primary aluminum producer in the world and become a major aluminum exporting country in the Asia and Pacific region.

India's Bharat Aluminium Co. Ltd. planned to increase its smelter capacity by 50% to 150,000 t/yr at Korba, Chattisgarh. Hindalco Industries Ltd. added 33,000 t/yr of capacity in its expansion project and planned to raise the total smelting capacity to 342,000 t/yr by adding two more potlines by 2003. Indian Aluminium Co. Ltd. planned to expand its Hirakud smelter in Orissa to 57,000 t/yr from 30,000 t/yr by transferring idled pots from Belgaum, Karnataka. National Aluminium Co. Ltd.'s aluminum smelter at Angul, Orissa, was being expanded to 350,000 t/yr in 2002 from 230,000 t/yr.

**Copper.**—Australia's resources of copper are largely at the Olympic Dam copper-uranium-gold-silver deposit in South Australia and at the Mount Isa copper-lead-zinc deposit in Queensland, although copper is widely distributed throughout the country. The Mount Isa Mine was the largest producer of copper in Australia and also was one of the world's largest underground mines. The Olympic Dam copper operations produced its 1-millionth metric ton (t) of refined copper early in the year. After the optimization study to improve efficiency was completed in mid-year, management decided to initiate a low-cost expansion to achieve 235,000 t/yr of refined copper.

Owing to economic expansion, China's copper production and consumption continued to grow rapidly. In 2001, China's copper consumption was estimated to be about 2.7 Mt and was expected to increase to about 3.0 Mt in 2005. Because the output of domestic copper mines could not meet the copper smelters' requirements, China had to import a large quantity of copper concentrates from Australia, Chile, and Mongolia. This trend should continue in the future, although domestic copper smelters, such as Jiangxi Copper Co. Ltd. and Tongling Nonferrous Metals Co., planned to expand their output capacities in a couple of years. The domestic supplies of concentrate and refined copper were not expected to meet

demand, therefore, China was expected to become one of the leading copper-importing countries in the world.

All Papua New Guinea's copper mining was from the huge Ok Tedi open cut at the headwaters of the Ok Tedi River in the Star Mountains of Western Province.

India's Birla Copper completed the expansion of its Gujarat smelter's capacity to 150,000 t/yr from 100,000 t/yr. The expansion of Sterlite Industries' smelter at Tuticorin reached full capacity of 150,000 t/yr. Swil's new smelter and refinery at Bharuch, Gujarat, was expected to be onstream in 2003.

**Gold and Silver.**—Australia, which ranked third after South Africa and the United States, has about 8% of world economic gold resources. In 2001, Australia, which was the world's third largest producer of gold following South Africa and the United States, accounted for about 12% of world output. The Cannington underground mine in Queensland, Australia, which was the world's leading single-mine silver producer in 2001, contributed about 4% of global silver production in 2001.

In the region, China and Indonesia ranked as the second and third largest gold producers, respectively, following Australia. In the past several years, total gold production in the region increased slightly, but consumption declined slightly, especially in the Great China (China, Hong Kong, and Taiwan). In 2001, gold consumption in the region accounted for about 43% of the world's total. India, the United States, and China ranked the first, second, and third, respectively, in the world in gold consumption. The gradual liberation of the Chinese market, which included the opening of the Shanghai Gold Exchange, could prompt foreign investment in the gold mining sector. Although foreign investment in the gold sector remained hampered by some regulations, the prospects for investment and trade will be bright when the deregulation process was completed. China may replace the United States as the second largest gold-consuming country in the world in the near future.

Gold and silver were the only metallic minerals recovered in Fiji in 2001 and were produced solely at Emperor Mines Ltd.'s Vatukoula Mine, which is often referred to as the Emperor Mine.

Gold in New Zealand was mined at two large hard-rock mines—the Martha Hill Mine on the Coromandel Peninsula on North Island and the Macraes Mine near Dunedin on South Island. Alluvial gold was produced from three dredging operations on the South Island—Grey River, Quinns Terrace, and Waikaka.

Papua New Guinea's producing gold mines centered on four large operations, one medium-sized mine, and a large small-scale sector that included mechanized alluvial gold mines and primitive manual gold panning-sluicing workings by individuals. Silver was a coproduct at the Misima Mine, which was one of the country's large mines, and at the intermediate-size Tolukuma Mine in Central Province.

In the Solomon Islands, Australia-based Delta Gold Ltd.'s Gold Ridge Mine, was closed in mid-2000 owing to civil unrest. This large-scale mine, which was located 26 km east-southeast of the capital at Honiara on Guadalcanal Island, previously produced gold and silver at Gold Ridge. It remained closed throughout 2001.

**Iron and Steel.**—Iron ore resources occur in all six Australian States and the Northern Territory, but almost 95% of the economic demonstrated resources (EDR) are in Western Australia, which includes about 90% in the Hamersley region, a major world iron ore province. In 2001, Australia ranked fourth following China, Russia, and Ukraine in EDR iron ore resources. Hamersley Iron Pty. Ltd. (a wholly owned subsidiary of Rio Tinto) reached agreement with Shanghai Baosteel Group Corp., which was China's largest steel maker, to form an unincorporated iron ore joint-venture operation in Western Australia. Under the agreement, Hamersley Iron would supply Baosteel with 200 Mt of products, which would average 10 million metric tons per year (Mt/yr) of ore during the 20-year life of the joint venture.

Iron ore in the form of titanomagnetite-rich sands was mined in New Zealand at two sites along the western coast of North Island. All ore from the Taharoa ironsands site was exported to China and Japan, whereas the ironsands at Waikato North Head provided ore to BHP New Zealand Steel Ltd.'s 450,000-t/yr integrated steel plant.

China was the largest iron and steel producer in the world in 2001. Domestic iron ore mines supplied only about 50% of the iron ore consumed by pig iron producers. Large and small pig iron producers planned to either renovate their blast furnaces or add new blast furnaces at existing sites, but iron ore output still was expected to decline slightly in the next several years. Therefore, imports of iron ore were expected to increase in the next several years, eventually China would replace Japan to become the largest iron ore importing country in the world.

India's Rio Tinto Orissa Mining Ltd. studied a large new iron ore mining project in the Gandhamardan-Malanjtoli area of Orissa that could start operation in 2006 and could produce 25 Mt/yr in its fifth year and eventually 50 Mt/yr. Kudremukh Iron Ore Co. Ltd. planned to open a new mine and beneficiation plant at Ongole in Andhra Pradesh to produce 1.5 to 2 Mt/yr of concentrates in 2004. Jindal Vijayanagar Steel's new iron ore pelletizing plant reached a production rate of 2.16 Mt/yr.

**Lead and Zinc.**—Pasminco Ltd., which was the world's largest producer of lead and zinc, appointed voluntary administrators and suspended trading of its shares on the Australian Stock Exchange owing to an adverse financial position, although its mines and smelters worldwide continued to operate.

In 2001, China was the largest zinc metal producer in the world. The depressed metal market and the Government's continued crackdown on illegal mining activities in the country have had a great influence on mining operations. The depleted concentrates stockpile in China caused lead and zinc producers to rely increasingly on imported raw materials and forced several major zinc metal producers to reduce their outputs in 2001 and 2002. In the past several years, China exported about one-third of its zinc metal output. Owing to increased domestic demand, especially in the steel sector, and weakening of the metal market worldwide, zinc metal exports from China decreased sharply in 2001. The Government urged lead and zinc producers to restrain their output and exports.

India's Hindustan Zinc Ltd. planned a new greenfield zinc smelter at Kapasan, Rajasthan, with a production capacity of

100,000 t/yr. Binani Zinc also planned to expand its zinc smelter in 2002 to 100,000 t/yr from 30,000 t/yr.

**Nickel.**—Australia ranked first in EDR of nickel and was the second largest producer in the world after Russia in 2001.

New Caledonia has about one-seventh of the world's lateritic nickel resources, and the nickel industry dominates its economy. In 2001, a \$180 million program was initiated to increase the production capacity of the French-owned Doniambo Smelter to 75,000 t/yr from 60,000 t/yr.

Jinchuan Nonferrous Metals Corp. planned to expand nickel mining output capacity in the next several years. China produced about 50,000 t/yr of primary nickel and consumed about 83,000 t/yr of nickel in 2001. The stainless steel sector, which was the largest consumer, accounted for 35% to 40% of total nickel consumption in China and will continue to add more output capacity in the next several years. The country will have to increase its nickel imports to meet the projected shortage.

**Platinum-Group Metals.**—No Australian mines were primary producers of platinum-group metals (PGMs), although minor production was produced at Western Australia's Eastern Goldfields at Kalgoorlie-Boulder and Kambalda as a byproduct of nickel operations.

Jinchuan Nonferrous Metals Corp. was the largest PGM producer in China and planned to invest \$360 million to expand the production capacity of PGMs to 1,500 kg/yr from 1,000 kg/yr by 2005. Japanese production of primary platinum was derived entirely from imported ore and concentrates.

**Tin.**—Australia's second major tin mine, the Ardlethan Mine in central New South Wales, was at full production at yearend 2001.

China was the largest tin-producing country in the world and exported about 60% of its total output. China consumed about 48,000 t of tin in 2001. Chinese consumption was expected to increase slowly but steadily in the next several years because of the expanded demand for tin from the electronics sector. The Government tightened the export quota and urged tin producers to control output. These policies could provide better market conditions in the world.

**Tungsten.**—China was the largest tungsten producing country in the world, and its output accounted for more than 80% of the world total. In the past several years, the Chinese Government and producers met yearly to find a solution as to how to maintain the tungsten market price and to control production. The Government closed illegal mines and set tungsten production and export quotas. The Government urged tungsten producers to produce more value-added products and to reduce exporting raw materials.

### **Industrial Minerals**

**Diamond.**—Although several diamond operations had various activities, such as various drilling, sampling, trenching, tunneling, and/or washing of materials, ongoing during the year, only two diamond producers were active in Australia in 2001—the Argyle open pit in the Ellendale diamond province

of the western Kimberley region of Western Australia and the Merlin open pit in the Northern Trough in northeastern Northern Territory. Both were wholly owned by Australia's Rio Tinto Ltd., which is a dual-listed company with the United Kingdom's Rio Tinto Plc.

**Phosphate Rock.**—China, which was the largest phosphate-rock-producing country in the region, produced more than 20 Mt/yr, which contained about 7 Mt of phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>). Owing to transportation problems, a large quantity of phosphate rock from mines in the southwestern part of the country could not be delivered to fertilizer plants on the eastern coast. By 2005, the Government projected that phosphate fertilizer demand would exceed 10.5 Mt and that the phosphate fertilizer output capacity would be 8.5 Mt. China may be required to import significant amounts of phosphate fertilizer to meet its demand. Unless the transportation problems can be resolved, China may have difficulty expanding its phosphate rock output.

### **Mineral Fuels**

**Coal.**—In 2001, Australia was again the world's leading exporter of coal as it has been since 1984; this marked its 17th consecutive year as the leading coal exporter.

Coal output from China ranked first in the world. Since 1999, the Government has reformed its coal sector, by closing a significant number of small illegal mines around the country. Coal output declined during the past 2 years, but production was expected to increase in the next several years because the state-owned mines operated by Shenhua Corp. and the Shuicheng Mining Co. were expected to be in full operation in the next several years. Domestic coal analysts projected that China may have a coal shortage of about 200 Mt/yr by 2005 owing to declining output. Capacity has diminished at some older coal mines owing to a lack of funds, and construction of new coal mines was behind schedule. Also, the Government was urging consumers to use low-sulfur and low-ash coals by controlling output from the high-sulfur and high-ash mines.

**Petroleum and Natural Gas.**—In 2001, Western Australia and the adjacent Commonwealth offshore areas accounted for about 55% of Australia's total crude oil and condensate and all the country's liquefied natural gas (LNG). Australia produced about 72% of its crude oil requirements; this was a decrease from about 80% in the previous year. Woodside Energy Ltd., which was the operator of the North West Shelf Venture (NWSV), announced the go-ahead of the fourth LNG liquefaction train adjacent to existing facilities on the Burrup Peninsula in Western Australia. The NWSV consisted of the following equal participants: BHP Petroleum (North West Shelf) Pty. Ltd., BP Developments Australia Pty. Ltd., Chevron Australia Pty. Ltd., Japan Australia LNG (MIMI) Pty. Ltd., Shell Development (Australia) Pty. Ltd., and Woodside.

Indian Oil Co. planned to expand its Digboi oil refinery's capacity to 1 Mt/yr from 600,000 t/yr. The country's total refining capacity increased to 115 Mt/yr at yearend. Availability of petroleum products from domestic refineries was adequate to meet the domestic demand except for liquefied

petroleum gas. Gasoline and diesel were produced in excess of domestic requirements.

In 2001, Indonesia's oil production declined for the third consecutive year owing to aging oilfields. Because of lower output and higher domestic demand, exports of oil also declined. Difficult investment conditions and an uncertain regulatory environment have had a negative impact on the oil and gas sector. The Indonesian Government was formulating new incentives to attract investors interested in exploring new areas.

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TABLE 1  
ASIA AND THE PACIFIC: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2001 1/

(Thousand metric tons unless otherwise specified)

| Country              | Aluminum |         |        | Barite | Cement    | Coal       |            | Copper           |                  | Fluorspar | Gold mine, Au content (metric tons) |
|----------------------|----------|---------|--------|--------|-----------|------------|------------|------------------|------------------|-----------|-------------------------------------|
|                      | Bauxite  | Alumina | Metal  |        |           | Anthracite | Bituminous | Mine, Cu content | Refined, primary |           |                                     |
| Afghanistan          | --       | --      | --     | 2      | 120       | --         | 185        | 5                | --               | --        | --                                  |
| Australia            | 53,285   | 16,271  | 1,798  | 20     | 7,500     | --         | 264,680    | 873              | 558              | --        | 285                                 |
| Bangladesh           | --       | --      | --     | --     | 970       | --         | --         | --               | --               | --        | --                                  |
| Bhutan               | --       | --      | --     | --     | 160       | --         | 65         | --               | --               | --        | --                                  |
| Brunei               | --       | --      | --     | --     | 250       | --         | --         | --               | --               | --        | --                                  |
| Burma                | --       | --      | --     | 34     | 460       | --         | 49         | 26               | 26               | --        | (2/)                                |
| Cambodia             | --       | --      | --     | --     | 50        | --         | --         | --               | --               | --        | --                                  |
| China                | 9,800    | 4,650   | 3,500  | 3,600  | 6,610     | 195,000    | 920,000    | 587              | 1,520            | 2,450     | 185                                 |
| Fiji                 | --       | --      | --     | --     | 95        | --         | --         | --               | --               | --        | 4                                   |
| Hong Kong            | --       | --      | --     | --     | 1,250     | --         | --         | --               | --               | --        | --                                  |
| India                | 8,387    | 2,400   | 624    | 850    | 100,000   | --         | 305,000    | 31               | 310              | 1         | 4                                   |
| Indonesia            | 1,237    | --      | 180    | --     | 31,100    | (2/)       | 84,000     | 1,081            | 217              | --        | 166                                 |
| Japan                | --       | 331     | 7      | --     | 76,550    | --         | 3,198      | 1                | 1,426            | --        | 8                                   |
| Korea, North         | --       | --      | --     | 70     | 5,160     | 17,000     | --         | 13               | 13               | 25        | 2                                   |
| Korea, Republic of   | --       | --      | --     | --     | 52,012    | 3,817      | --         | --               | 473              | --        | 29                                  |
| Laos                 | --       | --      | --     | --     | 92        | --         | 125        | --               | --               | --        | --                                  |
| Malaysia             | 64       | --      | --     | 7      | 1,382     | --         | 546        | --               | --               | --        | 4                                   |
| Mongolia             | --       | --      | --     | --     | 68        | --         | 5,141      | 133              | (1/)             | 199       | 14                                  |
| Nepal                | --       | --      | --     | --     | 285       | --         | 15         | --               | --               | --        | --                                  |
| New Caledonia        | --       | --      | --     | --     | --        | --         | --         | --               | --               | --        | --                                  |
| New Zealand          | --       | --      | 322    | --     | 950       | --         | 3,500      | --               | --               | --        | 10                                  |
| Pakistan             | 9        | --      | --     | 25     | 9,900     | --         | 3,500      | --               | --               | 1         | --                                  |
| Papua New Guinea     | --       | --      | --     | --     | --        | --         | --         | 204              | --               | --        | 67                                  |
| Philippines          | --       | --      | --     | --     | 8,653     | --         | 1,500      | 20               | --               | --        | 34                                  |
| Singapore            | --       | --      | --     | --     | 2,000     | --         | --         | --               | --               | --        | --                                  |
| Sri Lanka            | --       | --      | --     | --     | 1,010     | --         | --         | --               | --               | --        | --                                  |
| Taiwan               | --       | --      | --     | --     | 18,128    | --         | --         | --               | --               | --        | (1/)                                |
| Thailand             | --       | --      | --     | 24     | 27,913    | --         | --         | --               | --               | 3         | --                                  |
| Vietnam              | --       | --      | --     | --     | 14,000    | 12,963     | --         | --               | --               | --        | 2                                   |
| Total                | 72,782   | 23,652  | 6,431  | 4,632  | 366,668   | 228,780    | 1,591,504  | 2,974            | 4,543            | 2,679     | 814                                 |
| World total          | 138,000  | 49,000  | 23,300 | 6,700  | 1,600,000 | 344,000    | 3,570,000  | 13,500           | 13,800           | 4,541     | 2,590                               |
| Share of world total | 53% 3/   | 48%     | 28%    | 69%    | 23%       | 67%        | 45%        | 22%              | 33%              | 59%       | 31%                                 |
| United States        | NA       | 4,650   | 2,640  | 400    | 88,900    | 3,500      | 938,000    | 1,340            | 1,630            | NA        | 354                                 |

See footnotes at end of table.



TABLE 1--Continued  
ASIA AND THE PACIFIC: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2001 1/

(Thousand metric tons unless otherwise specified)

| Country              | Graphite | Iodine<br>(metric tons) | Iron                 |         |                 | Lead                |                     | Magnesite | Manganese<br>mine, Mn<br>content | Mercury<br>mine, Hg<br>content 2/<br>(metric tons) | Mica |
|----------------------|----------|-------------------------|----------------------|---------|-----------------|---------------------|---------------------|-----------|----------------------------------|--|------|
|                      |          |                         | Ore, gross<br>weight | Pig     | Steel,<br>crude | Mine, Pb<br>content | Refined,<br>primary |           |                                  |  |      |
| Afghanistan          | --       | --                      | --                   | --      | --              | --                  | --                  | --        | --                               | --   | --   |
| Australia            | --       | --                      | 181,435              | 7,000   | 7,076           | 760                 | 237                 | 605       | 948                              | --   | --   |
| Bangladesh           | --       | --                      | --                   | --      | 30              | --                  | --                  | --        | --                               | --   | --   |
| Bhutan               | --       | --                      | --                   | --      | --              | --                  | --                  | --        | --                               | --   | --   |
| Brunei               | --       | --                      | --                   | --      | --              | --                  | --                  | --        | --                               | --   | --   |
| Burma                | --       | --                      | --                   | --      | --              | 1                   | 1                   | --        | (2/)                             | --   | --   |
| Cambodia             | --       | --                      | --                   | --      | --              | --                  | --                  | --        | --                               | --   | --   |
| China                | 450      | 500                     | 220,000              | 155,540 | 151,630         | 676                 | 984                 | 2,600     | 500                              | 200  | 150  |
| Fiji                 | --       | --                      | --                   | --      | --              | --                  | --                  | --        | --                               | --   | --   |
| Hong Kong            | --       | --                      | --                   | --      | 500             | --                  | --                  | --        | --                               | --   | --   |
| India                | 140      | --                      | 79,200               | 21,900  | 27,300          | 27                  | 74                  | 370       | 600                              | --   | 2    |
| Indonesia            | --       | 75                      | 469                  | --      | 2,780           | --                  | --                  | --        | --                               | --   | --   |
| Japan                | --       | 6,643                   | 1                    | 78,836  | 102,866         | 5                   | 127                 | --        | --                               | --   | --   |
| Korea, North         | 25       | --                      | 700                  | 250     | 1,000           | 60                  | 60                  | 1,000     | --                               | --   | --   |
| Korea, Republic of   | (2/)     | --                      | 195                  | 25,898  | 43,852          | 1                   | 161                 | --        | --                               | --   | 109  |
| Laos                 | --       | --                      | --                   | --      | --              | --                  | --                  | --        | --                               | --   | --   |
| Malaysia             | --       | --                      | 376                  | --      | 2,500           | --                  | --                  | --        | --                               | --   | 4    |
| Mongolia             | --       | --                      | --                   | --      | 10              | --                  | --                  | --        | --                               | --   | --   |
| Nepal                | --       | --                      | --                   | --      | --              | --                  | --                  | --        | --                               | --   | --   |
| New Caledonia        | --       | --                      | --                   | --      | --              | --                  | --                  | --        | --                               | --   | --   |
| New Zealand          | --       | --                      | 2,700                | --      | 750             | --                  | --                  | --        | --                               | --   | --   |
| Pakistan             | --       | --                      | --                   | 1,500   | 500             | --                  | --                  | 4         | --                               | --   | --   |
| Papua New Guinea     | --       | --                      | --                   | --      | --              | --                  | --                  | --        | --                               | --   | --   |
| Philippines          | --       | --                      | --                   | --      | 530             | --                  | --                  | 1         | --                               | --   | --   |
| Singapore            | --       | --                      | --                   | --      | 450             | --                  | --                  | --        | --                               | --   | --   |
| Sri Lanka            | 7        | --                      | --                   | --      | --              | --                  | --                  | --        | --                               | --   | 1    |
| Taiwan               | --       | --                      | --                   | 14,384  | 17,336          | --                  | --                  | --        | --                               | --   | 10   |
| Thailand             | --       | --                      | --                   | --      | 2,127           | 1                   | 4                   | --        | (3/)                             | --   | --   |
| Vietnam              | --       | --                      | --                   | --      | 310             | --                  | --                  | --        | --                               | --   | --   |
| Total                | 622      | 7,218                   | 485,076              | 305,308 | 361,547         | 1,531               | 1,648               | 4,580     | 2,048                            | 200  | 276  |
| World total          | 821      | 2,670                   | 1,060,000            | 622,000 | 826,000         | 3,200               | 3,460               | 28,600    | 7,570                            | 1,400  | 297  |
| Share of world total | 76%      | 37%                     | 46%                  | 49%     | 44%             | 48%                 | 48%                 | 16% 3/    | 27%                              | 14% 3/   | 93%  |
| United States        | --       | 1,700                   | 46,100               | 42,100  | 90,100          | 437                 | 290                 | W         | --                               | NA   | 89   |

See footnotes at end of table.

TABLE 1--Continued  
ASIA AND THE PACIFIC: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2001 1/

(Thousand metric tons unless otherwise specified)

| Country              | Nickel              |            | Petroleum<br>crude<br>(million 42-<br>gallon barrels) | Natural gas<br>(dry)<br>(million<br>cubic meters) | Salt    | Tin<br>(metric tons) |                     |          |        | Tungsten,<br>mine W<br>content<br>(metric tons) | Zinc                |                     |
|----------------------|---------------------|------------|---|---|---------|----------------------|---------------------|----------|--------|---|---------------------|---------------------|
|                      | Mine, Ni<br>content | Refined 4/ |   |   |         | Mine, Sn<br>content  | Refined,<br>primary | Titanium |        |   | Mine, Zn<br>content | Refined,<br>primary |
|                      |                     |            |   |   |         |                      |                     | Ilmenite | Rutile |   |                     |                     |
| Afghanistan          | --                  | --         | --  | 3,000   | 13      | --                   | --                  | --       | --     | --  | --                  | --                  |
| Australia            | 205                 | 128        | 231   | 30,000  | 9,536   | 9,802                | 1,094               | 2,017    | 206    | --  | 1,519               | 556                 |
| Bangladesh           | --                  | --         | 2   | 7,000   | 350     | --                   | --                  | --       | --     | --  | --                  | --                  |
| Bhutan               | --                  | --         | --  | --  | --      | --                   | --                  | --       | --     | --  | --                  | --                  |
| Brunei               | --                  | --         | 71  | 11,000  | --      | --                   | --                  | --       | --     | --  | --                  | --                  |
| Burma                | (2/)                | --         | 3   | 7,100   | 35      | 230                  | 30                  | --       | --     | 71  | (2/)                | --                  |
| Cambodia             | --                  | --         | --  | --  | 40      | --                   | --                  | --       | --     | --  | --                  | --                  |
| China                | 52                  | 50         | 1,210   | 30,000  | 34,105  | 9,500                | 105,000             | 170      | --     | 38,500  | 1,700               | 2,040               |
| Fiji                 | --                  | --         | --  | --  | --      | --                   | --                  | --       | --     | --  | --                  | --                  |
| Hong Kong            | --                  | --         | --  | --  | --      | --                   | --                  | --       | --     | --  | --                  | --                  |
| India                | --                  | --         | 239   | 25,519  | 14,500  | --                   | --                  | 430      | 19     | --  | 146                 | 205                 |
| Indonesia            | 102                 | --         | 489   | 79,470  | 680     | 90,000               | 53,470              | --       | --     | --  | --                  | --                  |
| Japan                | --                  | 79         | 5   | 2,521   | 1,350   | --                   | 668                 | --       | --     | --  | 45                  | 542                 |
| Korea, North         | --                  | --         | --  | --  | 500     | --                   | --                  | --       | --     | 700   | 100                 | 100                 |
| Korea, Republic of   | --                  | --         | --  | --  | 800     | --                   | --                  | --       | --     | --  | 5                   | 508                 |
| Laos                 | --                  | --         | --  | --  | 2       | (2/)                 | --                  | --       | --     | --  | --                  | --                  |
| Malaysia             | --                  | --         | 244   | 58,751  | --      | 4,973                | 32,566              | 122      | --     | --  | --                  | --                  |
| Mongolia             | --                  | --         | 74  | --  | 1       | --                   | --                  | --       | --     | 63  | --                  | --                  |
| Nepal                | --                  | --         | --  | --  | 2       | --                   | --                  | --       | --     | --  | --                  | --                  |
| New Caledonia        | 118                 | --         | --  | --  | --      | --                   | --                  | --       | --     | --  | --                  | --                  |
| New Zealand          | --                  | --         | 12  | 5   | 60      | --                   | --                  | --       | --     | --  | --                  | --                  |
| Pakistan             | --                  | --         | 22  | 2,500   | 1,520   | --                   | --                  | --       | --     | --  | --                  | --                  |
| Papua New Guinea     | --                  | --         | --  | --  | --      | --                   | --                  | --       | --     | --  | --                  | --                  |
| Philippines          | 27                  | --         | (2/)  | --  | 600     | --                   | --                  | --       | --     | --  | --                  | --                  |
| Singapore            | --                  | --         | --  | --  | --      | --                   | --                  | --       | --     | --  | --                  | --                  |
| Sri Lanka            | --                  | --         | --  | --  | 130     | --                   | --                  | --       | --     | --  | --                  | --                  |
| Taiwan               | --                  | 11         | (2/)  | 849   | 66      | --                   | --                  | --       | --     | --  | --                  | --                  |
| Thailand             | --                  | --         | 23  | 19,638  | 853     | 2,383                | 22,387              | --       | --     | 53  | 24                  | 74                  |
| Vietnam              | --                  | --         | 120   | 1,700   | 650     | 3,500                | 1,200               | 120      | --     | --  | 36                  | --                  |
| Total                | 504                 | 268        | 2,745   | 279,053   | 65,793  | 120,388              | 216,415             | 2,859    | 225    | 39,387  | 3,575               | 4,025               |
| World total          | 1,330               | 1,160      | 24,900  | 2,540,000   | 225,000 | 223,000              | 267,000             | 4,200    | 369    | 44,300  | 9,000               | 9,360               |
| Share of world total | 38%                 | 23%        | 11% 2/  | 11% 2/  | 29%     | 54%                  | 81%                 | 68%      | 61% 2/ | 89%   | 40%                 | 43%                 |
| United States        | --                  | --         | NA  | NA  | 44,800  | --                   | --                  | 300      | W      | --  | 842                 | 311                 |

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

1/ U.S. data and world totals are rounded to no more than three significant digits.

2/ Less than 1/2 unit.

3/ Excludes U.S. production.

4/ Includes nickel content of oxide and chemicals but excludes ferroalloy.

TABLE 2  
ASIA AND THE PACIFIC: POPULATION AND ECONOMY IN 2001 1/

| Country            | Population  |      | Gross domestic product (GDP) 2/ |      | Gross national income per capita |      | Real GDP growth (percent) |         | Projected read GDP growth (percent) |         |
|--------------------|-------------|------|---------------------------------|------|----------------------------------|------|---------------------------|---------|-------------------------------------|---------|
|                    | Total       | Rank | Total                           | Rank | Total                            | Rank | 2001 3/                   | 2001 4/ | 2002 4/                             | 2003 4/ |
|                    | (thousands) |      | (millions)                      |      |                                  |      |                           |         |                                     |         |
| Afghanistan        | 27,248      | 38   | NA                              |      | \$800                            | 142  | NA                        | NA      | NA                                  | NA      |
| Australia          | 19,387      | 51   | \$368,571                       | 15   | 19,770                           | 29   | 2.6                       | NA      | NA                                  | NA      |
| Bangladesh         | 133,405     | 8    | 46,652                          | 50   | 370                              | 170  | 4.7                       | 5.2     | 4.2                                 | 5.4     |
| Bhutan             | 828         | 153  | 533                             | 160  | 640                              | 148  | 5.9                       | 6.0     | 6.0                                 | 6.5     |
| Brunei             | 345         | 168  | 4,700                           | 107  | 13,882                           | 43   | 3.0                       | NA      | NA                                  | NA      |
| Burma              | 48,315      | 25   | 14,200                          | 72   | 1,500                            | 120  | 4.8                       | NA      | NA                                  | NA      |
| Cambodia           | 12,266      | 64   | 3,384                           | 120  | 270                              | 184  | 6.3                       | 6.3     | 5.0                                 | 6.0     |
| China              | 1,271,900   | 1    | 1,159,017                       | 6    | 890                              | 138  | 7.3                       | 7.3     | 7.4                                 | 7.5     |
| Fiji               | 824         | 154  | 1,684                           | 137  | 5,200                            | 70   | 2.6                       | 2.6     | 4.4                                 | 4.7     |
| Hong Kong          | 6,874       | 94   | 162,642                         | 26   | 25,920                           | 12   | 0.2                       | 0.6     | 1.4                                 | 3.5     |
| India              | 1,033,390   | 2    | 477,555                         | 12   | 460                              | 161  | 5.0                       | 5.4     | 4.0                                 | 6.0     |
| Indonesia          | 213,638     | 4    | 145,306                         | 28   | 680                              | 146  | 4.1                       | 3.5     | 3.2                                 | 4.4     |
| Japan              | 127,100     | 10   | 4,245,191                       | 2    | 35,990                           | 4    | (0.3)                     | NA      | NA                                  | NA      |
| Korea, North       | 22,384      | 47   | 15,750                          | 71   | 710                              | 143  | 3.7                       | NA      | NA                                  | NA      |
| Korea, Republic of | 47,645      | 26   | 422,167                         | 13   | 9,400                            | 51   | 3.0                       | 3.0     | 6.0                                 | 5.8     |
| Laos               | 5,403       | 103  | 1,712                           | 135  | 290                              | 177  | 5.3                       | 5.7     | 5.8                                 | 5.8     |
| Malaysia           | 23,796      | 42   | 87,540                          | 40   | 3,640                            | 83   | 0.5                       | 0.4     | 4.5                                 | 5.0     |
| Mongolia           | 2,422       | 138  | 1,049                           | 144  | 400                              | 165  | 1.1                       | 1.5     | 3.0                                 | 4.9     |
| Nepal              | 23,585      | 44   | 5,525                           | 102  | 250                              | 189  | 4.8                       | 4.7     | 0.8                                 | 3.5     |
| New Caledonia      | 216         | 176  | 3,057                           | 123  | 15,060                           | 38   | 2.1                       | NA      | NA                                  | NA      |
| New Zealand        | 3,849       | 123  | 48,277                          | 49   | 12,380                           | 45   | 2.5                       | NA      | NA                                  | NA      |
| Pakistan           | 141,450     | 7    | 59,605                          | 44   | 420                              | 163  | 3.6                       | 2.5     | 3.6                                 | 4.5     |
| Papua New Guinea   | 5,254       | 106  | 2,959                           | 124  | 580                              | 151  | (3.4)                     | (3.4)   | 0.0                                 | 1.1     |
| The Philippines    | 77,015      | 14   | 71,438                          | 42   | 1,050                            | 130  | 3.2                       | 3.2     | 4.0                                 | 4.5     |
| Singapore          | 4,103       | 119  | 92,252                          | 39   | 24,740                           | 15   | (2.0)                     | (2.0)   | 3.9                                 | 5.6     |
| Solomon Islands    | 432         | 165  | 264                             | 165  | 580                              | 151  | (10.0)                    | (10.1)  | (6.0)                               | 2.0     |
| Sri Lanka          | 19,649      | 50   | 16,346                          | 69   | 830                              | 141  | (1.4)                     | (1.3)   | 2.8                                 | 5.5     |
| Taiwan             | 22,484      | 45   | 281,200                         | 17   | 12,941                           | 46   | (1.9)                     | (2.2)   | 3.0                                 | 4.4     |
| Thailand           | 61,238      | 19   | 114,760                         | 33   | 1,970                            | 104  | 1.8                       | 1.8     | 3.8                                 | 4.0     |
| Vietnam            | 79,526      | 13   | 32,903                          | 56   | 410                              | 164  | 5.0                       | 5.8     | 5.7                                 | 6.2     |
| Total              | 3,435,971   | XX   | 7,886,239                       | XX   | XX                               | XX   | XX                        | XX      | XX                                  | XX      |
| World total        | 6,133,569   | XX   | 31,283,839                      | XX   | XX                               | XX   | 1.4                       | NA      | NA                                  | NA      |

NA Not available. XX Not applicable.

1/ Figures in parentheses are negative.

2/ Includes data as of January 1, 2002. GDP listed may differ from that reported in individual country owing to differences in source or date of reporting.

3/ Source: World Bank, 2002, World Development Indicators Database, April.

4/ Source: Asian Development Bank, 2002, Asian Development Outlook Update.

TABLE 3  
ASIA AND THE PACIFIC:SELECTED EXPLORATION SITES IN 2001 1/

| Country          | Type 2/ | Site                        | Commodity      | Company                               | Resource 3/   | Exploration 4/        |
|------------------|---------|-----------------------------|----------------|---------------------------------------|---|-----------------------|
| Australia        | F       | Binneringie/Mt. Deans       | Ta, Nb, Sn     | Australasian Gold Mines NL            | 1.9,000 t Ta <sub>2</sub> O <sub>5</sub> , 500 t Nb <sub>2</sub> O <sub>5</sub> | Feasibility drilling. |
| Do.              | P       | Cosmos Deeps                | Ni             | Jubilee Mines NL                      | 37,000 t Ni   | Extensive drilling.   |
| Do.              | E       | Cracow                      | Au, Ag         | Sedimentary Holdings Ltd.             | 240,000 oz Au   | Do.                   |
| Do.              | E       | Donald & Jackson            | Heavy minerals | Zirtanium                             | 98 Mt heavy minerals  | Feasibility drilling. |
| Do.              | E       | Dongara                     | Heavy minerals | Magnetic Minerals Ltd.                | 6.4 Mt heavy minerals   | Extensive drilling.   |
| Do.              | F       | Dubbo                       | Rare earths    | Alkane Exploration NL                 | 1.58 Mt Zr, 34,000 t Hf   | Feasibility drilling. |
| Do.              | F       | Douglas                     | Heavy minerals | Basin Minerals Ltd.                   | 21.2 Mt heavy minerals  | Do.                   |
| Do.              | D       | Ellendale/Argyle            | Diamond        | Kimberly Diamond Company NL           | 59 million carats diamond   | Feasibility study.    |
| Do.              | F       | Ginkgo/Snapper/Gallipoli    | Heavy minerals | BeMax Resources NL                    | 25 Mt heavy minerals  | Feasibility drilling. |
| Do.              | P       | Granny Smith/Wallaby        | Au             | Placer Dome Inc.                      | 1.5 Moz reserve; 1.8 Moz resource   | Resource extension.   |
| Do.              | D       | Mindarie                    | Heavy minerals | Southern Titanium NL                  | 7 Mt heavy minerals   | Feasibility drilling. |
| Do.              | P       | Mineral Hill                | Cu, Au         | Triako Resources Ltd.                 | 15,000 t Cu, 115,000 oz Au  | Extensive drilling.   |
| Do.              | E       | Mt. Ida                     | Au             | Hamill Resources Ltd.                 | Data not released   | Do.                   |
| Do.              | E       | Mt. Jackson/Windarling      | Fe             | Portman Ltd.                          | 74 Mt Fe  | Do.                   |
| Do.              | P       | Mt. Rawdon                  | Au, Ag         | Equigold NL                           | 1.4 Moz Au, 5.5 Moz Ag  | Do.                   |
| Do.              | E       | Mungari East/Frog's Leg     | Au             | Dioro Exploration NL                  | 635,000 oz Au   | Do.                   |
| Do.              | F       | Munni Munni                 | PGM, Au        | Helix Resources Ltd.                  | 857,000 oz PGM + Au   | Feasibility drilling. |
| Do.              | F       | Panton                      | PGM, Au        | Platinum Australia Ltd.               | 1.3 Moz PGM, 254,000 oz Au  | Do.                   |
| Do.              | E       | Riverina/First Hit          | Au             | Barra Resources Ltd.                  | 76,000 oz Au  | Extensive drilling.   |
| Do.              | F       | Syerston                    | Ni, Co, PGM    | Black Range Minerals Ltd.             | 624,000 t Ni  | Feasibility study.    |
| Do.              | P       | Telfer                      | Au             | Newcrest Mining Ltd.                  | 17.6 Moz Au   | Extensive drilling.   |
| Burma            | E       | Block 10/Modi Taung         | Au             | Ivanhoe Mines Ltd.                    | Data not released   | Do.                   |
| Do.              | F       | Letpadaung                  | Cu             | do.                                   | 3.5 Mt Cu   | Feasibility drilling. |
| China            | E       | Tamuqi                      | Cu             | Nanjing Geological Survey             | 600,000 t Cu  | Do.                   |
| Do.              | E       | Weiquan                     | Cu             | Xinjiang Geological Survey            | 400,000 t Cu  | Do.                   |
| Do.              | E       | Fengyan                     | Pb, Zn         | Fujian Geological Survey              | 530,000 t Pb, Zn  | Do.                   |
| Do.              | E       | Banbianjie                  | Zn             | Guizhou Geological Survey             | 410,000 t Zn  | Do.                   |
| Do.              | E       | Shiji                       | W, Cu          | Gansu Nonferrous Geological Survey    | 180,000 t WO <sub>3</sub>   | Do.                   |
| Do.              | E       | Yuanlingzhai                | Mo             | Jiangxi Geological Survey             | 120,000 t Mo  | Do.                   |
| Do.              | E       | Lirenka                     | Pb, Zn         | Yunnan Geological Survey              | 620,000 t Pb, Zn  | Do.                   |
| Do.              | E       | Dasongshu                   | Au             | Jilin Geological Survey               | 45 t Au   | Do.                   |
| Do.              | E       | Sandaogou                   | Au             | Liaoning Nonferrous Geological Survey | 42 t Au   | Do.                   |
| Indonesia        | F       | Dairi                       | Zn, Pb, Ag     | International Annex Ventures Inc.     | 1.2 Mt Zn, 772,000 t Pb, 3.3 Moz Ag   | Feasibility drilling. |
| Do.              | F       | Gag Island                  | Ni, Co         | BHP Billiton/Pt Aneka Tambang         | 3.2 Mt Ni   | Feasibility study.    |
| Do.              | F       | Halmahera area              | Ni, Co         | PT Aneka Tambang                      | 2.1 Mt Ni, 150,000 t Co   | Feasibility drilling. |
| Laos             | F       | Sepon                       | Au, Ag, Cu     | Oxiana Resources NL                   | 3.5 Moz Au, 7 Moz Ag  | Do.                   |
| Mongolia         | E       | Turquoise Hill (Oyu Tolgai) | Au, Cu, Mo     | Ivanhoe Mines Ltd.                    | 10 Moz Au, 2.4 Mt Cu  | Extensive drilling.   |
| New Caledonia    | D       | Goro                        | Ni, Co         | Inco Ltd., BRGM                       | 3.4 Mt Ni   | Feasibility study.    |
| Do.              | F       | Koniambo                    | Ni             | Falconbridge Nickel Corp.             | 3.89 Mt Ni  | Feasibility drilling. |
| Do.              | F       | Nakety/Bogota               | Ni, Co         | Argosy Minerals Inc., SMT Mines       | 1.85 Mt Ni  | Feasibility study.    |
| Papua New Guinea | P       | Lihir                       | Au             | Lihir Gold Ltd.                       | 15.1 Moz Au   | Extensive drilling.   |
| Philippines      | E       | Boyongan                    | Au, Cu         | Philex Gold Inc.                      | 8.3 Moz Au, 1.59 Mt Cu  | Do.                   |
| Thailand         | F       | Puthep                      | Cu             | Pan Australian Resources NL           | 220,000 t Cu  | Feasibility drilling. |
| Vietnam          | E       | Nui Phao                    | W, Au, Bi, Cu  | Tiberon Minerals Ltd.                 | 53,000 t WO <sub>3</sub> , 122,000 oz Au  | Extensive drilling.   |

1/ Abbreviations used for commodities in this table include the following: Ag--silver, Au--gold, Bi--bismuth, Co--cobalt, Cu--copper, Fe--iron, Hf--hafnium, Mo--molybdenum, Nb--niobium (niobium), Nb<sub>2</sub>O<sub>5</sub>--niobium (niobium) oxide, Ni--nickel, Pb--lead, PGM--platinum-group metals, Sn--tin, Ta--tantalum, Ta<sub>2</sub>O<sub>5</sub>--tantalum oxide, W--tungsten, WO<sub>3</sub>--tungsten oxide, Zn--zinc, and Zr--zirconium.

Abbreviations used for units of measurement in this table include the following: Moz--million troy ounces, Mt--million metric tons, oz--troy ounces, and t--metric tons.

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

3/ Resources reported where available based on data from various public sources and reflect unverified public information reported by trade journals as reported in May 2002 Mining Engineering

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

TABLE 4  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED BAUXITE MINE PRODUCTION, 1990-2007 1/

(Thousand metric tons, gross weight)

| Country   | 1990   | 1995   | 2000   | 2001   | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|-----------|--------|--------|--------|--------|---------|---------|---------|---------|
| Australia | 41,400 | 42,700 | 53,800 | 53,300 | 54,000  | 55,000  | 55,000  | 57,000  |
| China e/  | 2,400  | 5,000  | 9,000  | 9,800  | 11,000  | 12,000  | 14,000  | 16,000  |
| India     | 4,850  | 5,240  | 7,560  | 3,890  | 9,000   | 9,000   | 9,000   | 9,000   |
| Indonesia | 1,210  | 899    | 1,150  | 1,240  | 1,250   | 1,250   | 1,200   | 1,200   |
| Malaysia  | 398    | 184    | 123    | 64     | 65      | 65      | 65      | 65      |
| Other     | 403    | 190    | 131    | 73     | 74      | 74      | 74      | 74      |
| Total     | 50,200 | 48,700 | 64,100 | 64,400 | 66,300  | 68,300  | 70,300  | 50,700  |

e/ Estimated.

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

TABLE 5  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED PRIMARY ALUMINUM METAL PRODUCTION, 1990-2007 1/

(Thousand metric tons)

| Country      | 1990  | 1995  | 2000  | 2001  | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|--------------|-------|-------|-------|-------|---------|---------|---------|---------|
| Australia    | 1,230 | 1,300 | 1,770 | 1,800 | 1,800   | 1,800   | 2,000   | 2,200   |
| China e/     | 847   | 1,750 | 2,800 | 3,370 | 4,400   | 5,000   | 5,700   | 6,200   |
| India        | 433   | 537   | 644   | 624   | 650     | 675     | 675     | 700     |
| Indonesia e/ | 186   | 220   | 160   | 180   | 200     | 220     | 220     | 220     |
| New Zealand  | 260   | 273   | 328   | 322   | 350     | 350     | 350     | 350     |
| Other        | 34    | 18    | 7     | 7     | 7       | 7       | 7       | 7       |
| Total        | 2,990 | 4,100 | 5,710 | 6,300 | 7,410   | 8,050   | 8,950   | 9,680   |

e/ Estimated.

1/ 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 SECONDARY ALUMINUM METAL PRODUCTION, 1990-2007 1

(Thousand metric tons)

| Country   | 1990  | 1995  | 2000  | 2001  | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|-----------|-------|-------|-------|-------|---------|---------|---------|---------|
| Australia | 33    | 55    | 110   | 110   | 111     | 112     | 112     | 112     |
| China e/  | 7     | 120   | 175   | 200   | 220     | 230     | 250     | 270     |
| Japan     | 1,090 | 1,180 | 1,210 | 1,170 | 1,120   | 1,100   | 1,100   | 1,100   |
| Total     | 1,130 | 1,360 | 1,500 | 1,480 | 1,450   | 1,440   | 1,460   | 1,480   |

e/ Estimated.

1/ 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 COPPER MINE PRODUCTION, 1990-2007 1/

(Thousand metric tons of metal content)

| Country          | 1990  | 1995  | 2000  | 2001  | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|------------------|-------|-------|-------|-------|---------|---------|---------|---------|
| Australia        | 327   | 398   | 829   | 869   | 878     | 850     | 910     | 910     |
| China e/         | 285   | 445   | 593   | 587   | 580     | 590     | 600     | 600     |
| India            | 58    | 47    | 32    | 31    | 34      | 34      | 35      | 35      |
| Indonesia        | 164   | 444   | 1,010 | 1,080 | 1,100   | 1,150   | 1,200   | 1,250   |
| Mongolia         | 124   | 122   | 125   | 134   | 135     | 130     | 130     | 200     |
| Papua New Guinea | 170   | 213   | 203   | 204   | 210     | 200     | 210     | 210     |
| Other            | 239   | 152   | 171   | 60    | 60      | 60      | 150     | 210     |
| Total            | 1,370 | 1,820 | 2,960 | 2,970 | 3,000   | 3,010   | 3,240   | 3,420   |

e/ Estimated.

1/ 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 REFINED COPPER METAL PRODUCTION, 1990-2007 1/

(Thousand metric tons)

| Country            | 1990  | 1995  | 2000  | 2001  | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|--------------------|-------|-------|-------|-------|---------|---------|---------|---------|
| Australia          | 274   | 248   | 488   | 560   | 545     | 590     | 650     | 650     |
| China e/           | 560   | 1,080 | 1,370 | 1,520 | 1,600   | 1,650   | 1,850   | 2,000   |
| India              | 42    | 40    | 243   | 328   | 382     | 425     | 500     | 525     |
| Indonesia          | --    | --    | 158   | 213   | 230     | 235     | 240     | 240     |
| Japan              | 1,010 | 1,190 | 1,440 | 1,430 | 1,400   | 1,440   | 1,450   | 1,540   |
| Korea, Republic of | 186   | 235   | 468   | 474   | 490     | 480     | 510     | 510     |
| Other              | 160   | 185   | 180   | 209   | 209     | 210     | 465     | 580     |
| Total              | 2,232 | 2,980 | 4,340 | 4,734 | 4,860   | 5,030   | 5,660   | 6,040   |

e/ Estimated. -- Negligible or no production.

1/ 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 GOLD MINE PRODUCTION, 1990-2007 1/

(Kilograms or metal content)

| Country          | 1990    | 1995    | 2000    | 2001    | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Australia        | 244,000 | 254,000 | 269,000 | 285,000 | 280,000 | 275,000 | 270,000 | 270,000 |
| China e/         | 100,000 | 140,000 | 180,000 | 185,000 | 190,000 | 195,000 | 210,000 | 215,000 |
| Indonesia        | 11,200  | 64,000  | 125,000 | 166,000 | 170,000 | 175,000 | 185,000 | 195,000 |
| Japan            | 7,300   | 9,190   | 8,400   | 7,820   | 9,100   | 8,500   | 8,000   | 7,500   |
| Mongolia         | 1,000   | 4,500   | 11,800  | 13,700  | 14,000  | 15,000  | 15,500  | 16,000  |
| New Zealand      | 4,630   | 12,100  | 9,880   | 10,000  | 10,000  | 10,000  | 11,000  | 11,000  |
| Papua New Guinea | 31,900  | 51,700  | 74,500  | 67,000  | 69,000  | 70,000  | 71,000  | 72,000  |
| Philippines      | 24,600  | 27,000  | 36,500  | 33,800  | 34,000  | 35,000  | 35,000  | 36,000  |
| Other            | 9,940   | 19,000  | 16,300  | 14,100  | 15,100  | 21,400  | 20,900  | 20,700  |
| Total            | 435,000 | 581,000 | 759,000 | 783,000 | 791,000 | 805,000 | 826,000 | 843,000 |

e/ Estimated.

1/ 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 IRON ORE MINE PRODUCTION, 1990-2007 1/

(Thousand metric tons of metal content)

| Country         | 1990    | 1995    | 2000    | 2001    | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Australia       | 69,800  | 88,700  | 107,000 | 113,000 | 115,000 | 125,000 | 140,000 | 140,000 |
| China e/        | 55,000  | 82,300  | 73,600  | 72,600  | 75,000  | 74,000  | 70,000  | 65,000  |
| India           | 34,400  | 41,700  | 48,600  | 50,700  | 51,000  | 51,000  | 52,000  | 52,000  |
| Korea, North e/ | 4,700   | 510     | 300     | 300     | 300     | 300     | 300     | 300     |
| Other           | 216     | 146     | 238     | 161     | 153     | 143     | 124     | 104     |
| Total           | 164,000 | 213,000 | 229,000 | 236,000 | 241,000 | 250,000 | 262,000 | 257,000 |

e/ Estimated.

1/ 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 CRUDE STEEL PRODUCTION, 1990-2007 1/

(Thousand metric tons)

| Country            | 1990    | 1995    | 2000    | 2001    | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Australia          | 6,670   | 8,450   | 7,300   | 7,080   | 7,000   | 7,100   | 7,500   | 8,000   |
| China              | 66,100  | 95,400  | 129,000 | 152,000 | 182,000 | 200,000 | 220,000 | 235,000 |
| India              | 15,000  | 22,800  | 26,900  | 27,300  | 28,000  | 28,200  | 28,500  | 29,000  |
| Japan              | 110,000 | 102,000 | 106,000 | 103,000 | 107,600 | 106,000 | 105,000 | 105,000 |
| Korea, Republic of | 23,100  | 36,800  | 43,100  | 43,900  | 45,400  | 46,500  | 48,000  | 49,000  |
| Malaysia           | 1,200   | 2,450   | 2,430   | 4,100   | 4,000   | 4,200   | 4,200   | 4,500   |
| Taiwan             | 9,750   | 11,600  | 17,300  | 7,340   | 18,300  | 18,500  | 19,000  | 19,500  |
| Other              | 19,000  | 15,000  | 14,500  | 14,000  | 14,000  | 14,200  | 15,200  | 16,000  |
| Total              | 251,000 | 294,000 | 347,000 | 368,000 | 406,000 | 425,000 | 447,000 | 466,000 |

e/ Estimated.

1/ 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 LEAD MINE PRODUCTION, 1990-2007 1/

(Metric tons of metal content)

| Country         | 1990      | 1995      | 2000      | 2001      | 2002 e/   | 2003 e/   | 2005 e/   | 2007 e/   |
|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Australia       | 570,000   | 455,000   | 678,000   | 714,000   | 715,000   | 715,000   | 716,000   | 716,000   |
| China e/        | 315,000   | 520,000   | 660,000   | 676,000   | 550,000   | 650,000   | 670,000   | 680,000   |
| India           | 23,200    | 34,000    | 28,900    | 27,000    | 25,000    | 26,000    | 26,000    | 27,000    |
| Japan           | 18,700    | 9,660     | 8,840     | 5,000     | 5,600     | 5,000     | 5,000     | 4,500     |
| Korea, North e/ | 80,000    | 75,000    | 60,000    | 60,000    | 60,000    | 60,000    | 60,000    | 60,000    |
| Other           | 41,500    | 17,100    | 21,300    | 4,490     | 4,700     | 4,300     | 4,200     | 4,100     |
| Total           | 1,050,000 | 1,110,000 | 1,460,000 | 1,490,000 | 1,360,000 | 1,460,000 | 1,480,000 | 1,490,000 |

e/ Estimated.

1/ 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 PRIMARY REFINED LEAD PRODUCTION, 1990-2007 1/

(Thousand metric tons)

| Country               | 1990 | 1995  | 2000  | 2001  | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|-----------------------|------|-------|-------|-------|---------|---------|---------|---------|
| Australia             | 212  | 215   | 223   | 237   | 238     | 239     | 240     | 240     |
| China e/              | 260  | 458   | 998   | 984   | 1,100   | 1,150   | 1,200   | 1,300   |
| India                 | 29   | 62    | 70    | 74    | 53      | 55      | 60      | 60      |
| Japan                 | 205  | 148   | 130   | 127   | 110     | 110     | 110     | 110     |
| Korea, North e/       | 70   | 65    | 60    | 60    | 60      | 60      | 60      | 60      |
| Korea, Republic of e/ | 61   | 130   | 171   | 161   | 170     | 170     | 170     | 170     |
| Other                 | 7    | 10    | 4     | 5     | 2       | 2       | 2       | 2       |
| Total                 | 844  | 1,090 | 1,660 | 1,650 | 1,730   | 1,790   | 1,840   | 1,940   |

e/ Estimated.

1/ 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 SECONDARY REFINED LEAD PRODUCTION, 1990-2007 1/

(Thousand metric tons)

| Country               | 1990 | 1995 | 2000 | 2001 | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|-----------------------|------|------|------|------|---------|---------|---------|---------|
| Australia             | 17   | 26   | 28   | 30   | 32      | 32      | 32      | 32      |
| China e/              | 36   | 150  | 102  | 211  | 170     | 200     | 225     | 240     |
| India                 | 17   | 28   | 26   | 20   | 20      | 22      | 22      | 24      |
| Japan                 | 122  | 140  | 182  | 175  | 180     | 180     | 180     | 180     |
| Korea, North e/       | 6    | 15   | 15   | 15   | 15      | 15      | 15      | 15      |
| Korea, Republic of e/ | 45   | 55   | 50   | 50   | 52      | 55      | 60      | 60      |
| Malaysia              | 16   | 34   | 35   | 42   | 42      | 42      | 42      | 42      |
| Philippines           | 12   | 17   | 16   | 16   | 16      | 16      | 16      | 16      |
| Thailand              | 11   | 11   | 24   | 27   | 27      | 27      | 27      | 27      |
| Other                 | 8    | 9    | 12   | 12   | 12      | 12      | 12      | 30      |
| Total                 | 290  | 485  | 490  | 598  | 566     | 601     | 631     | 666     |

e/ Estimated.

1/ 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 NICKEL MINE PRODUCTION, 1990-2007 1/

(Metric tons of metal content)

| Country       | 1990    | 1995    | 2000    | 2001    | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Australia     | 67,000  | 98,000  | 166,000 | 205,000 | 210,000 | 215,000 | 220,000 | 230,000 |
| China e/      | 33,000  | 41,800  | 50,300  | 51,500  | 54,600  | 55,000  | 57,000  | 58,000  |
| Indonesia     | 68,300  | 88,200  | 98,200  | 102,000 | 110,000 | 115,000 | 125,000 | 140,000 |
| New Caledonia | 85,100  | 120,000 | 123,000 | 118,000 | 120,000 | 122,000 | 124,000 | 125,000 |
| Philippines   | 15,800  | 15,100  | 17,400  | 27,400  | 28,000  | 29,000  | 29,000  | 30,000  |
| Total         | 269,000 | 363,000 | 455,000 | 503,000 | 523,000 | 536,000 | 555,000 | 583,000 |

e/ Estimated.

1/ 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 PLATINUM GROUP METAL MINE PRODUCTION, 1990-2007 1/

(Kilograms of metal content)

| Country           | 1990 | 1995 | 2000  | 2001  | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|-------------------|------|------|-------|-------|---------|---------|---------|---------|
| <b>Palladium:</b> |      |      |       |       |         |         |         |         |
| Australia         | 400  | 400  | 812   | 828   | 850     | 900     | 950     | 950     |
| China e/          | 130  | 170  | 350   | 400   | 420     | 430     | 470     | 500     |
| Total             | 530  | 570  | 1,160 | 1,230 | 1,270   | 1,330   | 1,420   | 1,450   |
| <b>Platinum:</b>  |      |      |       |       |         |         |         |         |
| Australia         | 100  | 100  | 171   | 174   | --      | --      | --      | --      |
| China e/          | 260  | 300  | 650   | 700   | 740     | 750     | 790     | 850     |
| Total             | 360  | 400  | 821   | 874   | 740     | 750     | 790     | 850     |

e/ Estimated. -- Negligible or no production.

1/ 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 SILVER MINE PRODUCTION, 1990-2007 1/

(Metric tons of metal content)

| Country          | 1990  | 1995  | 2000  | 2001  | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|------------------|-------|-------|-------|-------|---------|---------|---------|---------|
| Australia        | 1,170 | 939   | 2,060 | 1,970 | 2,000   | 2,100   | 2,400   | 2,500   |
| China e/         | 130   | 910   | 1,600 | 1,910 | 2,100   | 2,300   | 2,500   | 2,700   |
| India            | 33    | 38    | 40    | 53    | 52      | 53      | 54      | 55      |
| Indonesia        | 107   | 276   | 256   | 348   | 370     | 380     | 400     | 410     |
| Japan            | 150   | 100   | 104   | 80    | 79      | 79      | 78      | 77      |
| New Zealand      | 5     | 28    | 23    | 23    | 24      | 24      | 25      | 25      |
| Papua New Guinea | 115   | 65    | 79    | 69    | 70      | 71      | 71      | 72      |
| Philippines      | 47    | 27    | 24    | 34    | 34      | 35      | 35      | 36      |
| Other            | 40    | 18    | 29    | 30    | 30      | 32      | 33      | 35      |
| Total            | 1,800 | 2,400 | 4,220 | 4,520 | 4,760   | 5,070   | 5,600   | 5,910   |

e/ Estimated.

1/ 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 TIN MINE PRODUCTION, 1990-2007 1/

(Metric tons of metal content)

| Country   | 1990    | 1995    | 2000    | 2001    | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|-----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Australia | 7,380   | 8,660   | 9,150   | 9,600   | 8,200   | 9,000   | 10,000  | 12,000  |
| China e/  | 42,000  | 61,900  | 99,400  | 95,000  | 75,000  | 90,000  | 85,000  | 85,000  |
| Indonesia | 30,200  | 46,100  | 51,600  | 90,000  | 60,000  | 61,000  | 62,000  | 64,000  |
| Malaysia  | 28,500  | 6,400   | 6,310   | 4,970   | 4,800   | 4,500   | 5,000   | 5,000   |
| Thailand  | 14,600  | 2,200   | 1,930   | 1,950   | 1,900   | 2,000   | 2,000   | 2,000   |
| Vietnam   | 850     | 4,500   | 3,700   | 3,500   | 2,500   | 2,500   | 2,500   | 2,500   |
| Total     | 124,000 | 130,000 | 172,000 | 205,000 | 152,000 | 169,000 | 167,000 | 171,000 |

e/ Estimated.

1/ 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 REFINED TIN PRODUCTION, 1990-2007 1/

(Metric tons)

| Country   | 1990    | 1995    | 2000    | 2001    | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|-----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Australia | 312     | 570     | 775     | 1,100   | 800     | 1,000   | 15,000  | 15,000  |
| China e/  | 35,000  | 67,700  | 112,000 | 105,000 | 80,000  | 90,000  | 90,000  | 90,000  |
| Indonesia | 30,400  | 38,600  | 46,400  | 53,500  | 54,000  | 55,000  | 63,000  | 66,000  |
| Japan     | 816     | 630     | 593     | 668     | 670     | 670     | 670     | 670     |
| Malaysia  | 49,100  | 39,400  | 26,200  | 32,600  | 31,000  | 32,000  | 32,000  | 32,000  |
| Thailand  | 15,500  | 8,240   | 17,100  | 21,400  | 22,000  | 23,000  | 23,000  | 23,000  |
| Vietnam   | 1,800   | 2,400   | 1,490   | 1,200   | 1,000   | 1,000   | 1,000   | 1,000   |
| Total     | 133,000 | 158,000 | 205,000 | 216,000 | 189,000 | 203,000 | 225,000 | 228,000 |

e/ Estimated.

1/ 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 TUNGSTEN MINE PRODUCTION, 1990-2007 1/

(Metric tons of metal content)

| Country         | 1990   | 1995   | 2000   | 2001   | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|-----------------|--------|--------|--------|--------|---------|---------|---------|---------|
| China e/        | 32,000 | 27,400 | 37,000 | 38,500 | 40,000  | 41,000  | 42,000  | 43,000  |
| Korea, North e/ | 1,000  | 900    | 700    | 700    | 600     | 600     | 600     | 600     |
| Other           | 1,100  | --     | --     | --     | --      | --      | --      | --      |
| Total           | 34,100 | 28,300 | 37,700 | 39,200 | 40,600  | 41,600  | 42,600  | 43,600  |

e/ Estimated. -- Negligible or no production.

1/ 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 ZINC MINE PRODUCTION, 1990-2007 1/

(Thousand metric tons of metal content)

| Country         | 1990  | 1995  | 2000  | 2001  | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|-----------------|-------|-------|-------|-------|---------|---------|---------|---------|
| Australia       | 940   | 937   | 1,410 | 1,520 | 1,520   | 1,600   | 1,600   | 1,600   |
| China e/        | 619   | 1,010 | 1,780 | 1,700 | 1,500   | 1,700   | 1,750   | 1,800   |
| India           | 74    | 155   | 144   | 146   | 150     | 150     | 155     | 155     |
| Japan           | 127   | 95    | 64    | 45    | 42      | 40      | 40      | 35      |
| Korea, North e/ | 230   | 150   | 100   | 100   | 100     | 100     | 100     | 100     |
| Thailand        | 62    | 135   | 159   | 139   | 140     | 140     | 140     | 135     |
| Other           | 34    | 22    | 34    | 42    | 42      | 42      | 41      | 40      |
| Total           | 2,090 | 2,500 | 3,690 | 3,690 | 3,490   | 3,770   | 3,830   | 3,870   |

e/ Estimated.

1/ 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 ZINC METAL PRODUCTION, 1990-2007 1/

(Metric tons)

| Country            | 1990  | 1995  | 2000  | 2001  | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|--------------------|-------|-------|-------|-------|---------|---------|---------|---------|
| Australia          | 304   | 320   | 493   | 554   | 555     | 558     | 559     | 600     |
| China e/           | 550   | 1,080 | 1,980 | 2,040 | 2,100   | 2,150   | 2,200   | 2,350   |
| India              | 79    | 171   | 201   | 230   | 228     | 230     | 235     | 235     |
| Japan              | 732   | 711   | 699   | 684   | 674     | 675     | 685     | 685     |
| Korea, North e/    | 200   | 150   | 100   | 100   | 100     | 100     | 100     | 100     |
| Korea, Republic of | 248   | 279   | 591   | 665   | 670     | 675     | 685     | 685     |
| Thailand           | 63    | 57    | 101   | 105   | 105     | 106     | 106     | 107     |
| Total              | 2,180 | 2,770 | 4,170 | 4,380 | 4,430   | 4,490   | 4,570   | 4,760   |

e/ Estimated.

1/ 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 DIAMOND PRODUCTION, 1990-2007 1/

(Thousand carats)

| Country      | 1990   | 1995   | 2000   | 2001   | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|--------------|--------|--------|--------|--------|---------|---------|---------|---------|
| Australia    | 34,600 | 40,700 | 26,600 | 26,200 | 26,000  | 27,000  | 27,500  | 28,000  |
| China e/     | 1,000  | 1,130  | 1,150  | 1,180  | 1,190   | 1,200   | 1,250   | 1,300   |
| India        | 15     | 21     | 16     | 17     | 17      | 18      | 18      | 20      |
| Indonesia e/ | 23     | 22     | 23     | 23     | 23      | 23      | 23      | 23      |
| Total        | 35,600 | 41,900 | 27,800 | 27,400 | 27,200  | 28,200  | 28,800  | 29,300  |

e/ Estimated.

1/ 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 PHOSPHATE ROCK PRODUCTION, 1990-2007 1/

(Thousand metric tons of P<sub>2</sub>O<sub>5</sub> content)

| Country     | 1990  | 1995  | 2000  | 2001  | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|-------------|-------|-------|-------|-------|---------|---------|---------|---------|
| China e/    | 6,400 | 7,960 | 5,820 | 6,300 | 6,900   | 7,000   | 7,100   | 7,300   |
| India       | 181   | 360   | 336   | 355   | 356     | 358     | 360     | 360     |
| Philippines | 3     | 8     | 109   | 113   | 110     | 113     | 115     | 115     |
| Vietnam     | 96    | 178   | 212   | 225   | 228     | 228     | 228     | 228     |
| Other       | 4     | 2     | 1     | 1     | 1       | 1       | 1       | 1       |
| Total       | 6,684 | 8,510 | 6,480 | 6,990 | 7,600   | 7,700   | 7,800   | 8,000   |

e/ Estimated. -- Negligible or no production.

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

TABLE 25  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED ANTHRACITE AND BITUMINOUS COAL PRODUCTION, 1990-2007 1/

(Thousand metric tons)

| Country            | 1990      | 1995      | 2000      | 2001      | 2002 e/   | 2003 e/   | 2005 e/   | 2007 e/   |
|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Australia          | 199,000   | 194,000   | 246,000   | 265,000   | 268,000   | 270,000   | 272,000   | 275,000   |
| China e/           | 1,010,000 | 1,310,000 | 957,000   | 1,120,000 | 1,350,000 | 1,450,000 | 1,550,000 | 1,600,000 |
| India              | 14,000    | 22,000    | 24,000    | 23,000    | 23,000    | 24,000    | 24,000    | 24,000    |
| Indonesia          | 10,000    | 40,000    | 76,800    | 92,500    | 97,000    | 100,000   | 105,000   | 110,000   |
| Japan              | 7,980     | 6,260     | 3,130     | 3,200     | 1,000     | 950       | 950       | --        |
| Korea, North e/    | 68,000    | 70,000    | 18,000    | 17,000    | 17,000    | 17,000    | 18,000    | 18,000    |
| Korea, Republic of | 17,200    | 5,720     | 4,170     | 3,820     | 3,500     | 3,400     | 3,400     | 3,400     |
| Philippines        | 1,190     | 1,200     | 1,300     | 1,500     | 1,500     | 1,600     | 1,600     | 1,700     |
| Vietnam            | 4,020     | 8,350     | 10,900    | 13,000    | 13,000    | 14,000    | 14,000    | 15,000    |
| Other              | 311       | 382       | 663       | 851       | 875       | 880       | 890       | 950       |
| Total              | 1,330,000 | 1,660,000 | 1,340,000 | 1,540,000 | 1,770,000 | 1,880,000 | 1,990,000 | 1,050,000 |

e/ Estimated. -- Negligible or no production.

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

TABLE 26  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED LIGNITE PRODUCTION, 1990-2007 1/

(Thousand metric tons)

| Country         | 1990    | 1995    | 2000    | 2001    | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Australia       | 47,700  | 50,700  | 67,000  | 70,000  | 72,000  | 74,000  | 75,000  | 76,000  |
| China e/        | 40,000  | 51,000  | 42,000  | 45,000  | 50,000  | 51,000  | 52,000  | 53,000  |
| Korea, North e/ | 22,000  | 20,000  | 18,000  | 9,000   | 7,000   | 7,000   | 8,000   | 9,000   |
| Mongolia        | 6,570   | 5,020   | 5,190   | 5,140   | 5,150   | 5,150   | 5,200   | 5,200   |
| Thailand        | 12,400  | 18,400  | 17,700  | 19,600  | 19,800  | 20,000  | 20,000  | 20,000  |
| Other           | 14      | 22      | 24      | 23      | 23      | 22      | 22      | 20      |
| Total           | 129,000 | 145,000 | 150,000 | 148,000 | 154,000 | 157,000 | 160,000 | 163,000 |

e/ Estimated.

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

TABLE 27  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED NATURAL GAS PRODUCTION, 1990-2007 1/

(Million cubic meters)

| Country   | 1990    | 1995    | 2000    | 2001    | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|-----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Australia | 20,700  | 29,700  | 30,800  | 30,000  | 31,000  | 32,000  | 32,000  | 35,000  |
| Brunei    | 9,450   | 11,200  | 10,800  | 11,000  | 10,000  | 10,000  | 12,000  | 12,000  |
| China     | 15,000  | 18,000  | 27,000  | 30,000  | 32,000  | 33,000  | 35,000  | 36,000  |
| India     | 10,200  | 17,800  | 30,000  | 25,500  | 26,000  | 26,000  | 28,000  | 28,000  |
| Indonesia | 61,000  | 85,100  | 82,300  | 79,500  | 80,000  | 80,000  | 81,000  | 82,000  |
| Malaysia  | 18,500  | 36,500  | 56,900  | 58,800  | 59,000  | 59,000  | 60,000  | 60,000  |
| Thailand  | 7,210   | 11,400  | 20,100  | 19,600  | 20,000  | 21,000  | 22,000  | 22,000  |
| Other     | 7,810   | 10,500  | 14,100  | 18,400  | 18,800  | 19,500  | 19,700  | 19,700  |
| Total     | 150,000 | 220,000 | 272,000 | 273,000 | 277,000 | 281,000 | 290,000 | 295,000 |

e/ Estimated.

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

TABLE 28  
ASIA AND THE PACIFIC: HISTORIC AND PROJECTED CRUDE PETROLEUM PRODUCTION, 1990-2007 1/

(Million 42-gallon barrels)

| Country   | 1990  | 1995  | 2000  | 2001  | 2002 e/ | 2003 e/ | 2005 e/ | 2007 e/ |
|-----------|-------|-------|-------|-------|---------|---------|---------|---------|
| Australia | 211   | 185   | 264   | 231   | 225     | 230     | 230     | 230     |
| China e/  | 1,010 | 1,100 | 1,200 | 1,210 | 1,220   | 1,230   | 1,300   | 1,400   |
| India     | 250   | 258   | 238   | 239   | 240     | 240     | 242     | 245     |
| Indonesia | 534   | 580   | 516   | 490   | 500     | 510     | 550     | 570     |
| Malaysia  | 227   | 257   | 249   | 244   | 250     | 250     | 260     | 260     |
| Vietnam   | 20    | 64    | 115   | 120   | 150     | 160     | 170     | 170     |
| Other     | 50    | 64    | 72    | 73    | 74      | 74      | 75      | 75      |
| Total     | 2,250 | 2,440 | 2,580 | 2,530 | 2,590   | 2,620   | 2,750   | 2,880   |

e/ Estimated.

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