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The Mineral Industries of Asia and the Pacific

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The Asia and the Pacific region, which includes 31 countries and territories, has a total area of about 29.9 million square kilometers, which accounts for about 20% of the world total. The total population was about 3.79 billion, which accounted for about 55% of the world total in 2010. China and India, which were the world's two most populous countries, accounted for about 66% of the region's total population. The economies of Afghanistan, Bhutan, China, India, Laos, Malaysia, Papua New Guinea, Philippines, Singapore, Sri Lanka, Taiwan, and Thailand each grew by more than 7% in 2010. Singapore had the highest per capita income in the region followed by Brunei, Hong Kong, Australia, Taiwan and Japan; Afghanistan had the lowest per capita income (tables 1, 2).

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

During the past several years, U.S. Geological Survey scientists studied the mineral occurrences in Afghanistan and reported significant untapped mineral resources, such as copper, graphite, iron ore, lithium, potash, rare earths, and talc. The rare-earth resource at the Khanneshin carbonatite complex in the Registan desert of Helmand Province was estimated to be at least 1 million metric tons (Mt). The rare-earth content in selected samples of ore was comparable to the light rare-earth deposits of Bayan Obo, Nei Mongol Autonomous Region, in China and Mountain Pass, California, in the United States. In addition, the area around Khanneshin also contained barium, phosphorus, strontium, and uranium.

China and Japan were the two major regional markets for crude and processed minerals. Japan was the region's leading consumer of imported ferrous and nonferrous metals because of its large manufacturing sector and poor indigenous resources. China, however, remained the region's leader in terms of growth in consumption, especially for such mineral commodities as aluminum, cement, coal, copper, iron and steel, lead, natural gas, crude petroleum, phosphate rock, rare earths, tin, and zinc. India, Indonesia, Malaysia, the Republic of Korea, Singapore, Taiwan, Thailand, and Vietnam also were important consumers of such mineral commodities as aluminum, cement, copper, gold, iron ore, lead, phosphate rock, silver, steel, and zinc.

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General Economic Conditions

In March 2011, a 9.0 magnitude earthquake and tsunami hit northern Japan; this was the worst natural disaster to affect Japan in the past five decades. The disaster caused widespread destruction of houses, industry, and infrastructure. The prefectures in the northeastern coast were the hardest hit, and

power shortages were widespread into the southern part of the country, where most industrial bases were located. Owing to the shortage of electricity, DOWA Holdings, Mitsui Mining and Smelting Co. Ltd., Mitsubishi Material Corp., and Tobo Zinc Co. Ltd. shut down their operations temporary. The supply of automotive parts was halted for more than a month. The Japanese economy slipped into recession because of disruptions to its industry supply chains in 2011.

The earthquake near Japan caused damage to the Fukushima Daiichi nuclear powerplant and, as a result, radioactive isotopes were emitted. This incident heightened the debate on the safety of nuclear energy. Germany planned to shut down all its nuclear powerplants, and China planned to slow down the construction of its nuclear powerplants. The incident could boost demand for alternative energy sources, including coal, natural gas, oil, and wind power. It could potentially increase prices on such commodities as indium, lithium, and rare earths, which are used in the development for alternative energy sources.

Economic growth in the developing Asian countries continued during the past 2 years; however, the growth rate was slightly slower than it was before the financial crisis in 2009. China, India, and Indonesia continued to maintain strong fixed capital investment whereas the economies of other countries in the Asia and the Pacific region stalled slightly. The main reason for the slowing of the region's economy was the faltering prospects from major industrial countries in the world. Overall, the region largely kept its growth momentum through 2011.

During the past four decades, Asian economies had relied on Western industrial countries as major export markets. As a result, the region was highly vulnerable to the economic downturn in these markets. Since the 2000s, however, Asian countries had begun to broaden their export partners from mainly Western industrial countries toward the developing Asian countries and, as a result, intraregional trade was expanding. In the Asia and the Pacific region, such countries as Australia, China, Indonesia, Japan, the Philippines, Singapore, and Vietnam had become centers for the processing and trade of minerals. Raw mineral products from Australia, Indonesia, the Philippines, and Vietnam were exported to China for processing into low-value-added products and then shipped to such countries as Japan and Singapore for further processing into high-value semimanfactured products. As a result, China had become the main export and import mineral market in the region. Trade was a core ingredient of the region's success and was expected to remain important as large domestic consumption develops. Labor productivity and adoption of innovative technology remain areas where developing Asian economies lag those of Western industrial countries. Promotion of human capital investment could help reduce the gap (World Bank, The, 2012, p. 31–37).

Legislation

The Australian Government drafted a proposal to scrap State royalty taxes on mining projects and replace them with a uniform national resource rent tax or resource super profits tax (RSPT) beginning on July 1, 2012. The RSPT would be up to 40% on coal, copper, iron, zinc, and other minerals mined in all existing and future mining projects. The intention of the proposed tax was to target project profits rather than project production and to shift the tax burden from low-profitability projects to more profitable projects. The RSPT was calculated as assessable revenue less deductible expenses, including an allowance for capital expenditure. All existing projects that were subject to State-based royalties would be taxed under the RSPT. State royalties would be continued but would be creditable under the RSPT. Existing projects that were subject to the petroleum resource rent tax (PRRT) would not automatically be subject to the RSPT; rather, a company would instead be able to elect to have the RSPT apply. Facing objections from the mining sector, the Government modified the new taxation scheme for the resources sector (known as the mineral resource rent tax, or MRRT). Companies that had MRRT profits of less than A$50 million would be excluded from the new regime. The Government accepted all recommendations submitted by the policy transition group. The new MRRT would apply only to coal and iron ore mined in Australia. The current PRRT would be extended to all Australian onshore and offshore oil and gas projects, including the North West Shelf.

The Central Committee of the Communist Party of China met in October and issued a policy guideline (the 12th five-year plan) for the economic development of the country during the next 5 years (2011 through 2015). The Committee set up goals for the country to achieve sustained rapid growth and development in a way that is more people oriented and causes less degradation of the environment. The Government set the annual economic growth rate target at 7%. The lower growth target signaled that the Government planned to accelerate structural reform in the industrial sector and to tighten bank lending to soak up excess liquidity.

Even though it had been amended several times, the Chinese Government considered the 1984 resource tax law usable to meet the need for conservation of natural resources and protection of the environment. Under the current regulations, the fuels and minerals tax was based on tonnage produced. The Government planned to change the fuels and minerals tax so that it is based on market prices. The tax rate proposed was between 3% and 5% of the salable value of the commodity. Another issue related to the resource tax was who would collect the tax revenue. Currently, local governments collect the resource tax revenue of mined minerals and fuels under their jurisdictions, except for offshore oil, which is collected by the Administration of Taxation. A new resource tax for natural gas and oil based on price started a trial run in Xinjiang Uygur Autonomous Region beginning on June 1, 2010. The tax rate for gas and oil was set at 5% in Xinjiang. Beginning on December 1, 2010, the tax rate for gas and oil sold in the Provinces of Gansu, Guizhou, Hubei, Qinghai, Shanxi, Sichuan, and Yunnan; in the Autonomous Regions of Guangxi, Ningxia, and Nei Mongol; and in Chongqing City increased to 5%. The Government planned to implement the resource tax based on the sale price throughout the country in the near future. The Ministry of Finance (MOF) and the Administration of Taxation announced that the resource tax on high-alumina clay and fluorite had increased to 20 yuan per metric ton effective June 1, 2010; the resource tax on bastnasite and monazite would be taxed at 60 yuan per metric ton;

and middle and heavy rare earths would be taxed at a rate of 30 yuan per metric ton beginning on April 1, 2011.

The Government of Indonesia agreed to a 2-year ban on permits for forest clearing after signing a $1 billion climate aid deal with Norway aimed at reducing greenhouse gas emissions from deforestation by 41% by 2020. The moratorium went into effect in January 2011. Coal and mining projects that have a combined value of $14 billion could be affected by the moratorium because it would make it harder for the companies to obtain forest land-use permits. Newmont Mining Corp. of the United States, BHP Billiton plc of the United Kingdom, and Freeport McMoRan Copper & Gold Inc. of the United States were among the companies whose projects could be affected. The potentially affected projects were Newmont's Elang copper project on Sumbawa Island, BHP Billiton's Maruwai coal project on Kalimantan Island, and Freeport McMoRan's planned further development of the Grasberg copper mine in Papua Province, because of the need for a forest permit.

The Government of New Zealand proposed a draft bill to revise the Crown Minerals Act 1991. Under the draft bill, the Government would maintain the existing Schedule 4 areas and add 14 more areas into the schedule. The Government and the Regional Council would perform joint technical studies on mineral prospective areas on the North Island and the South Island. The Ministry of Energy and Resources and the land-holding minister would approve jointly the mineral-related access to Crown land based on the economic, mineral, and national significance of the proposal.

The National Assembly of Vietnam passed the 2010 Mineral Law to replace the 1996 Mineral Law and subsequent amendment of 2005; the new law would take effect on July 1, 2011. The new law protects unexploited minerals, and regulates geologic surveys for mineral resources, mineral exploration, and mining.

Exploration

Based on Metals Economic Group data, the 2010 exploration budget allocation for the Pacific region and Southeast Asia (excluding Australia) was about $750 million, which was up by about 70% from the 2009 level of $440 million. Indonesia, Papua New Guinea, and the Philippines together accounted for about 75% of the total mineral exploration budget for the region when Australia is excluded (Metals Economics Group, 2010). The increase in this region can be attributed to continued interest by companies from China and the Republic of Korea to expand the sources of supply for strategic minerals, such as base metals, gold, and rare earths, and by Japanese companies to develop regional copper and nickel deposits to supply Japan's smelting industry (Takemoto, 2010). There was also increased interest in exploring for undersea minerals in the Pacific Ocean. Based on the data on active exploration sites compiled for this review, the three countries with the largest number of exploration sites in this region were Indonesia (39%), the Philippines (21%), and Papua New Guinea (19%). Other countries with active exploration sites in 2010 included Burma (Myanmar), Fiji, Japan, Laos, Malaysia, New Caledonia, New Zealand, the Republic of Korea, the Solomon Islands, and Vietnam. Gold exploration accounted for approximately 54% of all exploration interest in the Pacific region; copper, 20%; nickel, 15%; bauxite, 8%; and other minerals, 3%.

Australia's mineral exploration spending for fiscal year 2011 (July 2010 to June 2011) was A$2.95 billion (US$2.80 billion), which was an increase of 32% from that of fiscal year 2010. Spending on iron ore increased by 27% to A$665 million (US$632 million), gold increased by 13% to A$652 million (US$619 million), coal increased by 62% to A$520 million (US$494 million), and copper increased by 60% to A$323 million (US$307 million). The exploration expenditure on mineral sand decreased to A$26 million (US$25 million). The State of Western Australia accounted for more than 50% of the total exploration spending of Australia followed by Queensland, South Australia, Northern Territory, and New South Wales. Brownfields exploration spending accounted for A$1.91 billion (US$1.82 billion) of the total (Geoscience Australia, 2012, p. 1).

In 2010, China's exploration spending increased to $16.2 billion from $7.6 billion in 2006, of which private company spending accounted for 23.5% of the total in 2010 compared with 9.7% in 2006. The number of people who participated in exploration activities also increased to 474,000 in 2010 from 215,000 in 2006. The Ministry of Land and Resources (MLR) announced that 10 large mineral resource provinces had been discovered during the past several years. These mineral resource provinces included copper in Xizang; gold in Dachang; iron ore in Awulale; nonferrous metals in Nyainqentanghla, Qimantage, Tianshan, and Yunnan; potash in Lop Nor Lake; and uranium in North China. At yearend 2009, China's proven reserves of gold, bauxite, coal, potash, copper, and iron ore increased by 42%, 30%, 28%, 23%, 16%, and 11%, respectively, from those of 2001. The MLR encouraged companies to explore for and develop bauxite, copper, and iron deposits because China depended on imports of these mineral commodities. The Chinese Government would provide special funding for these projects (Ministry of Land and Resources, 2011, p. 29–34).

Commodity Overview

Estimates for the production of major mineral commodities for 2011 and beyond have been based upon supply-side assumptions, such as announced plans for increased production/new capacity construction and bankable feasibility studies. The outlook tables in this summary chapter show historic and projected production trends; therefore, no indication is made about whether the data are estimated or reported, and revisions are not identified. Data on individual mineral commodities in tables in the individual country chapters are labeled to indicate estimates and revisions. The outlook segments of the mineral commodity tables are based on projected trends that could affect current producing facilities and on planned new facilities that operating companies, consortia, or Governments have projected to come online within indicated timeframes. Forward-looking information, which includes estimates of future production, exploration and mine development, the cost of capital projects, and timing of the start of operations, are subject to a variety of risks and uncertainties

that could cause actual events or results to differ significantly from expected outcomes. Projects listed in the following section are presented as an indication of industry plans and are not a USGS prediction of what will take place.

Metals

Aluminum and Bauxite and Alumina.—The region's production of bauxite accounted for about 61% of the world total in 2010. Australia, which was the world's leading producer of bauxite, accounted for about 32% of the world total; it was followed by China (20%) and India (8%). Production of aluminum accounted for about 49% of the world total in 2010. China, which was the world's leading producer of aluminum, accounted for about 41% of the world total; it was followed by Australia (4%) and India (3%) (table 4).

Regional production of bauxite and aluminum was expected to continue to increase at an average annual rate of about 4.8% for bauxite and 4.5% for aluminum between 2010 and 2017 (tables 5, 6). This prediction was based on reported capacity expansions in Australia, China, India, and Vietnam.

Owing to increased demand for alumina in the world in recent years, Australian alumina producers planned to expand their refineries' output capacities. Bauxite Resources Ltd.'s Darling Range North project was expected to start production in 2013. Rio Tinto Alcan was conducting a feasibility study to develop the bauxite resource in an area south of Embley River and the existing Weipa Mine. The new development would increase output capacity to 50 million metric tons per year (Mt/yr) from the current capacity of 21 Mt/yr in the region south of the Weipa Peninsula in 2016.

China was the second ranked bauxite producing country in the world, following Australia. Owing to the expansion of alumina production during the past 10 years, China required extensive imports of bauxite to meet the demand from its aluminum refineries. Refineries in the coastal Province of Shandong relied on overseas bauxite for their alumina production. During the past 4 years, China's bauxite imports were 30.0 Mt in 2010, 19.7 Mt in 2009, 25.8 Mt in 2008, and 23.2 Mt in 2007, and came mainly from Australia and Indonesia. The trend toward increased bauxite consumption was expected to continue in the future, and China would likely depend on imports to meet its demand. Bauxite from Indonesia was mainly from new development in West Kalimantan Province. The Indonesian Government's original plan was to ban exports of raw materials, such as bauxite and nickel ore in 2014; however, the Government decided to move up the export ban to May 2012. The ban would affect mostly small miners because major producers already had local processing plants. Ore producers could be exempted from the ban if they submit plans to process the ore within the country (Ministry of Energy and Mineral Resources, 2012).

Vietnam National Coal and Mineral Industries Group (VINACOMIN) and its partners started constructing bauxite mines in the Bac Bo region of Vietnam. These mines were scheduled to be completed in late 2011 and 2013. Bauxite from these mines would supply VINACOMIN's two alumina refineries in Cao Bang and Lang Son Provinces. Alumina content of bauxite in the Bac Bo region was less than 50%. Bauxite resources in Vietnam were estimated to be 4.8 billion metric tons (Phuong, 2012).

In the region, the production of aluminum is expected to continue to increase in the future. In 2010, the Chinese Government issued a circular to warn producers in China about the excess capacity of aluminum smelters and to stop construction of redundant aluminum projects. The Government originally disseminated the warning in 2003; however, China's aluminum producers and local governments ignored the warning. The Government had determined not to approve any new aluminum project during the next 3 years. Forty-four aluminum projects were under construction or in the planning stage; of that number, seven were located in Xinjiang Uygur Autonomous Region and Gansu Province; the Autonomous Regions of Nei Mongol and Ningxia and the Provinces of Qinghai, and Yunnan had four each. Aluminum smelting projects that were expected to be completed in 2011 included Gansu Dongxiing Aluminum Co. Ltd.'s (a subsidiary of Jiuquan Iron and Steel Corp.) 85,000-metric-ton-per-year (t/yr)-capacity plant in Dingxi, Gansu Province; Chalco Liancheng Aluminum Co. Ltd.'s 388,000-t/yr-capacity plant in Lanzhou, Gansu Province; China Power Investment Corp.'s Qingtongxia Aluminum Co. Ltd. 580,000-t/yr capacity expansion project in Qingtongxia, Ningxia Autonomous Region; Huanghe Xinye Aluminum Co. Ltd.'s (a subsidiary of Huanghe Hydropower Co. Ltd.) 250,000-t/yr-capacity plant in Xining, Qinghai Province; Qiaotou Aluminum Co.'s 400,000-t/yr-capacity expansion project in Datong, Qinghai Province; Fushun Aluminum Plant's 100,000-t/yr-capacity expansion project in Fushun, Liaoning Province; and Tianshan Aluminum Co.'s 400,000-t/yr-capacity plant and Nongliushi Aluminum Plant's 400,000-t/yr-capacity plant in Xinjiang Uygur Autonomous Region. China's aluminum output capacity was expected to reach 35 Mt if all proposed and ongoing construction projects are completed within the next 5 years.

Cobalt.—The region's mined cobalt output accounted for about 15% of the world total. Most of the region's cobalt is either produced as a byproduct or a co-product of nickel operations.

China was the leading cobalt producing country in the region. China had limited cobalt resources and was required to import a large quantity of cobalt concentrates to support the development of the cobalt battery sector. In 2010, China imported 349,544 metric tons (t) of cobalt concentrates and 16,907 t of unwrought cobalt. The cobalt content in these imported concentrates was about 6%, which was equal to about 21,000 t of cobalt. The Democratic Republic of the Congo [Congo (Kinshasa)] and South Africa supplied 93% of China's total cobalt imports. Domestic analysts estimated that the supply of cobalt in the Chinese market was about 41,000 t in 2010. The consumption of cobalt in batteries increased to 63% of the total consumption in 2010 from 50% in 2008, followed by cemented carbide, 11%; magnets and glazing, 7% each; chemical catalysts, 6%; and others, 6%. Estimated total consumption of cobalt was about 21,000 t in China, and stockpiled cobalt totaled about 12,000 t.

Regional production of mined cobalt was expected to continue to increase at an average annual rate of about 8% between 2010 and 2017 (table 7). This prediction was based on reported

greenfield and brownfield developments in New Caledonia, Papua New Guinea, and the Philippines. The construction of Vale Nouvelle-Calédonie's Goro operation in New Caledonia was completed in late 2010. The Nickel Asia Group and its partners planned to complete their hydrometallurgical processing plant to produce about 2,600 t of cobalt in 2013 in the Philippines. The Coral Bay Nickel Corp. planned to use high-pressure acid-leaching technology to recover cobalt and nickel from low-grade nickel ore in Palawan, Philippines. China Metallurgical Group Corp.'s Ramu Nickel Cobalt project, which is located near Madang in Papua New Guinea, was expected to be put into operation in early 2012 and was scheduled to produce up to 3,000 t/yr of cobalt after 18 months.

Copper.—The region's production of mined copper accounted for about 21% of the world total in 2010. China was the leading regional producer followed by Indonesia and Australia. Production of primary refined copper accounted for about 40% of the world's total output in 2010. Among the region's refined copper producers, China was the world's second ranked producer of primary and secondary refined copper behind Chile, and Japan was ranked third. Australia, India, and the Republic of Korea were also significant producers of refined copper in the region (table 4).

Between 2010 and 2017, regional production of mined and refined copper was expected to continue to increase at an average annual rate of about 5.9% and 2.5%, respectively. This estimation was based on reported capacity expansions of mined copper in Australia, China, India, Laos, Mongolia, the Philippines, and Vietnam, and on reported capacity expansions of refined copper in China (tables 8, 9).

Owing to the demand for housing and infrastructure construction and the manufacturing of consumer goods, China's copper consumption is expected to increase during the next several years. China's copper consumption is projected to increase by an average annual rate of about 6% to 11 Mt in 2017 from 7.45 Mt in 2010. Copper consumption in Japan is expected to increase because of reconstruction activities following the March 2011 earthquake and tsunami.

China was the world's leading refined copper producing country and was expected to continue increasing its refined copper output in the future. In China, Chifeng Jinjian Co. Ltd., which was located in Chifeng, Nei Mongol Autonomous Region, completed the upgrade of its copper smelter and refinery in 2010, which would have output capacities of 180,000 t/yr of blister copper and 70,000 t/yr of refined copper. Shandong Dongying Fangyuan Nonferrous Metals Co. Ltd. added 200,000 t/yr of output capacity to its copper refinery in Shandong Province. Minmetals's subsidiary Hunan Shuikoushan Nonferrous Metals Group Co. Ltd. and Western Mining Holding Co. Ltd. planned jointly to build a 200,000-t/yr-output-capacity copper refinery in Hunan Province. Yunnan Tin Corp. started the construction of a 100,000-t/yr-output-capacity copper refinery in Yunnan Province. Western Mining Group Co. Ltd. announced that the company would build a 100,000-t/yr-output-capacity copper smelter in Xining, Qinghai Province. Hunan Baoshan Nonferrous Metals Mining Co. agreed with the Guiyang local government to build a 150,000-t/yr-output-capacity copper cathode plant in Guiyang, Hunan Province. Daye Nonferrous Metals Co. planned to expand its copper refinery output capacity to 400,000 t/yr in 2012 after the scheduled completion of its 200,000-t/yr blister copper expansion project in early 2011. Guangxi Jinchuan Nonferrous Co. Ltd. (a subsidiary of Jinchuan Nonferrous Metals Corp.) started the construction of a 600,000-t/yr-output-capacity copper complex in Fangchenggang, Guangxi Autonomous Region. Domestic analysts estimated that about 900,000 t/yr of secondary copper output capacity was under construction in 2010 and was scheduled to be completed before 2013. Domestic mines supplied about 30% of the country's requirements for copper concentrates. China imported a considerable amount of copper concentrates, mainly from Australia, Chile, Mongolia, and Peru.

Australia's copper mine production was expected to increase at an annual rate of about 5%. Operations that were expected to increase the country's copper mine production included Hillgrove Resources Ltd.'s Kanmantoo Mine, Sandfire Resources NL's DeGrussa operation, Golden Cross Resources' Copper Hill project, and Ivanhoe Mines Ltd. Australia's Mount Elliot project. Australia was expected to export more than 50% of its copper concentrates output.

In Mongolia, Ivanhoe's Oyu Tolgoi mining complex planned to produce at least 544,000 t of copper in concentrates for the first 10 years of operation. The operation was scheduled to start up in 2013. Mongolyn Alt Corp.'s Tsagaan Suvarga Mine was scheduled to start production in 2012 and would reach full operational capacity of 25,000 t/yr copper in concentrates in 2013. In Papua New Guinea, two projects, Frieda River and Yandera, were in the feasibility study phase.

Gold.—The region's production of mined gold accounted for about 34% of the world total in 2010 (table 4). China was the leading mined-gold-producing country in the region, followed by Australia and Indonesia (table 10). China and Australia ranked first and second in the world production of gold. Indonesia and Papua New Guinea also were significant gold producers in the region.

Regional production of mined gold was expected to continue to increase at an average annual rate of 3.4% between 2010 and 2017. This prediction was based on gradual capacity expansions mainly at the major copper and gold mines in Australia, China, Indonesia, Mongolia, and Papua New Guinea.

Australian gold production was expected to increase only steadily in the next few years. The Crocodile Gold Corp.'s Cosmo Deep Mine, Regis Resources Ltd.'s Deketon Mine, and Anglo Gold Ashanti's Tropicana Joint Venture project were all expected to be brought onstream during the next 2 years. In China, gold production was expected to increase by only about 2% per year, as the country was unlikely to experience the strong production growth rate of the past several years. Many of China's gold mines had relatively high production costs and were small in scale. Gold production in Mongolia could increase because of access to exceptionally high-grade ore from the Oyu Tolgoi copper-gold mine, and output was expected to remain steady after 2013. The increase in gold production in Papua New Guinea was dependent upon when the Frieda River Mine and the Yandera Mine are put into operation.

The region was the world's major market for gold and accounted for about 59% of the world's total gold consumption

in 2010. India was the world's leading consumer of gold, accounting for about 23% of the world total. Owing to continuing strong economic growth and rising urban incomes (which led to higher demand for gold jewelry), China was the second ranked gold consumer, and its share of the world total increased to about 19%. The total gold demand from China and India reached more than 2,000 t in 2010. Jewelry accounted for about 90% of the world's gold consumption. The growth in consumption in the Asia and the Pacific region is attributable to weaker gold prices, which supported increased gold jewelry demand in China and India. Rising incomes in the region are expected to increase the affordability of jewelry and other fabricated gold products, and China and India will likely continue to be the driving force for the increase jewelry demand in spite of the high gold prices (World Gold Council, 2012, p. 27).

Iron and Steel.—The region's production of iron ore was estimated to account for, in terms of gross weight, about 67% of the world total in 2010. China ranked first in the world in the production of iron ore (in terms of iron content) and Australia and India ranked second and third in the region. The region's production of crude steel was estimated to account for about 64% of the world total. China, which was by far the world's leading producer of crude steel, accounted for about 44% of the world total, and Japan, India, and the Republic of Korea ranked second, third, and fourth, respectively. China's crude steel output was more than the combined total production of, in order of production, Japan, the United States, Russia, India, and the Republic of Korea (table 4).

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

Regional production of iron ore was expected to increase at an average annual rate of about 3% between 2010 and 2017 (table 11). This prediction was based on gradual capacity expansions in Australia, China, and India. In Australia, the Board of Fortescue Metals Group Ltd. approved an $8.4 billion plan to expand its production capacity to 155 Mt/yr from 55 Mt/yr in November 2010. Australia-based CITIC Pacific Mining Management Pty Ltd. (a subsidiary of a Hong Kong-based CITIC Pacific Ltd., which was, in turn, a member of China state-owned CITIC Group) had invested about $5 billion to develop its Sino iron ore project at Cape Preston and planned to produce about 24 Mt/yr of 67% iron in concentrates. Mount Gibson Iron Ltd. restarted the development of its Extension Hill iron ore project, and the first ore shipment was expected to begin in September 2011. The Extension Hill iron ore mine was designed to produce 3 Mt/yr. Rio Tinto Ltd. planned to invest $3.4 billion to expand its iron ore operation in Western Australia to 353 Mt/yr in 2015 from 220 Mt/yr in 2010. In China, the Government granted mining licenses to develop iron ore mines in the Provinces of Anhui, Liaoning, and Sichuan, and in Xinjiang Uygur Autonomous Region.

Regional production of crude steel was expected to increase at an average annual rate of about 2.5% between 2010 and 2017 (table 12). China was expected to lead in the expansion of crude steel production in the region. Shoudu Iron and Steel Group Co. and Tangshan Iron and Steel Group planned to build a 10-Mt/yr greenfield steel plant in Hebei Province. Anben Iron and Steel Group planned to expand steel production capacity in Liaoning Province to 30 Mt/yr by 2010. Tonghua Iron and Steel Group Co. Ltd. planned to expand capacity in Jilin Province to 10 Mt/yr during the next 3 to 10 years. The Chinese Government approved the applications of Baoshan Iron and Steel Group and Wuhan Iron and Steel Group to build two 10-Mt/yr greenfield iron and steel plants in Guangdong Province and Guangxi Autonomous Region, respectively. At yearend 2011, China's crude steel output capacity was more than 800 Mt/yr.

India also was expected to expand its crude steel production capacity significantly. The expansion would include the construction of a 13-Mt/yr steel plant at Paradip, State of Orissa, and increasing the production capacity of JSW Steel Co. Ltd.'s plant at Vijayanagar, State of Karnataka, to 10 Mt/yr in 2011. JSW also planned to build a 10-Mt/yr steel plant at Saraikela Kharswan in 2012.

Platinum-Group Metals.—The region's production of mined platinum and palladium was insignificant and accounted for less than 1% of the world total in 2010. Jinchuan Nonferrous Metals of China produced platinum and palladium as byproducts of mined nickel from its nickel mining and refining operations at Jinchuan, Province of Gansu. Australia was not a primary producer of platinum-group metals (PGM), although small amounts of palladium were produced as a byproduct of nickel operations at Kalgoorlie-Boulder and Kambalda in the State of Western Australia. Regional PGM consumption was expected to increase in the autocatalysts and electronics sectors. The rapid growth in the manufacture of automobiles, light vehicles, computers, and electronic goods in China and India raised the demand for PGM in the region (tables 13, 14).

Tin.—The Asia and the Pacific region was the dominant producer of mined tin and tin metal in the world. Production of mined tin and refined tin accounted for 71% and 81%, respectively, of the world total in 2010. China ranked first in the world in the production of mined tin and refined tin and Indonesia ranked second. The combined output of China and Indonesia accounted for about two-thirds of the world's mined tin output. Other significant refined tin producers in the region were Malaysia and Thailand.

Regional production of refined tin was expected to continue to increase at an average annual rate of about 2.5% between 2010 and 2017. Owing to depleted tin resources in the region, the production of mined tin was expected to decrease slightly during that period. This estimation was based on reported gradual expansions of capacity and increases in productivity (tables 15, 16). In Australia, Consolidated Tin Mines Ltd. continued its tin exploration near Cairns in northern Queensland. The company planned to prepare a feasibility study for this project if the test results were positive.

China, which was the world's leading consumer of tin metal, accounted for about 40% of the world's total consumption. The region consumed about 50% of the world's total output of tin metal. Indonesia was the leading tin exporting country in the region. China's tin smelting capacity exceeded its mine output capacity; therefore, the country was required to import tin concentrates from such countries as, in order of volume (tonnage) of imports, Burma, Bolivia, Australia, and Malaysia in 2010 and Burma, Bolivia, Nigeria, Laos, and Vietnam in 2011. Tin was one of the Chinese Government's protected commodities. Owing to increased domestic tin consumption, the export volume of tin from China was expected to decrease in the future. Likewise, the Indonesian Government banned exporting raw material, and as a result, the volume of tin supply from Indonesia to the world market also decreased. Burma is expected to replace Indonesia as the leading mined tin exporting country in the region in the future. The principal tin consumption sectors were electronics, glass, iron and steel, and packaging.

Industrial Minerals

Diamond.—The Asia and the Pacific region's production of diamond accounted for less than one-fifth of the world total in 2010. Australia was the leading diamond producing country in the region (table 17). Rio Tinto's Argyle Mine, which is located in the Ellendale diamond province in the State of Western Australia, was the world's leading producing diamond mine, but production there had gradually decreased during the past several years. Rio Tinto Australia exported most of its diamond output and planned to divest its diamond interests. The quality of diamond from Australia was considered low grade compared with that from Angola, Central African Republic, Guyana, India, Indonesia, and Sierra Leone. India was the leading diamond importing country in the region and ranked second in the world behind the European Union (Rio Tinto Ltd., 2012).

Lithium.—Lithium is the lightest metallic element and has been widely used in the battery and electronics sectors. Australia was the leading lithium producer in the Asia and the Pacific region. Talison Minerals Group's lithium operation is located at Greenbushes in Western Australia. Talison planned to increase its processing plant output capacity to 740,000 t/yr of lithium concentrates in 2012 from 315,000 t/yr in 2010. In China, lithium was produced from brine and spodumene. Qinghai CITIC Guoan Technology Development Co. Ltd., Tibet Mineral Development Co. Ltd., and Xinjiang Haoxin Lithium Salt Development Co. Ltd. were major lithium producers. These companies planned to expand their output capacities; however, high production costs and low recovery rates forced the companies to source raw material from overseas. Australia supplied about 80% of China's lithium demand. Overall regional lithium production was expected to increase at an average annual rate of about 6% between 2010 and 2017 (table 18; Behre Dolbear Australia Pty Ltd., 2011, p. 19).

Mineral Fuels

Coal.—The region's overall production of coal, which included anthracite, bituminous, and lignite, accounted for more than 50% of the world total in 2010. Production of anthracite coal, however, accounted for about 95% of the world total, and production of bituminous coal accounted for about 66%. China, which was by far the world's leading producer of anthracite and bituminous coals, accounted for about 69% and 45%, respectively, of the world total. In the Asia and the Pacific region, India and North Korea were the other significant producers of anthracite coal, and Australia, India, and Indonesia were the other significant producers of bituminous coal and lignite (table 4). China overtook Japan to become one of the world's leading importers and the region's leading consumers of coal. Japan and the Republic of Korea imported virtually all the coal required by their iron and steel and utility industries. Australia and Indonesia ranked as the world's leading coal exporters. The major regional coal exporters (suppliers) were Australia, Indonesia, and Vietnam.

Overall regional coal production was expected to increase at an average annual rate of about 2% between 2010 and 2017 (table 19). This prediction takes into account planned capacity expansions and newly developed mines. In Australia, capacity expansion at the Hunter Valley coal mine in the State of New South Wales was expected to be completed in 2012; the mine expansion was expected to increase output by 6 Mt/yr. The Ulan West Coal Mine expansion was scheduled to be completed in 2014 and was designed to add 7 Mt/yr of output. Capacity expansions of the Caval Ridge, Daunia, Lake Vermont, and Newlands Northern projects in Queensland were expected to be completed in 2013. In China, the Government approved Shenhua Coal Group's application to develop the Buertai Coal Mine in Nei Mongol Autonomous Region, which would have a design capacity of 20 Mt/yr of coal. The Shanxi Provincial government projected that 70 Mt/yr of coal output capacity would be added in Shanxi Province; the Province was expected to increase production to 750 Mt of coal in 2012. In Mongolia, companies that held exploitation licenses on such coal mines as Baruun Naran, Ovoot Tolgoi, and Tavan Tolgoi were waiting for the Mongolian Government to finalize the investment agreements before proceeding with the construction of the mines.

Trade Review

During the past three decades, the main source of economic growth in the Asia and the Pacific region has shifted from the export of manufactured goods toward the export of machinery. This shift was initially led by Japan, followed by the newly industrialized economies of Hong Kong, the Republic of Korea, Singapore, and Taiwan, and more recently by Indonesia, Malaysia, the Philippines, and Thailand. Trade liberalization and investment policy reforms in developing countries in the region have reduced barriers to trade and investment. Both the cross-border transshipment of production components and assembly within the region had increased during the past several years, and the composition of exports was shifted toward intermediate goods. The share of parts and components in manufactured imports also was trending upward in the region. By 2010, the volume of imports of parts and components had more than doubled in China, the Philippines, Thailand,

and Vietnam. China had become one of the major export destinations for all economies in the region. The export value to China from such countries as Malaysia, the Philippines, the Republic of Korea, Singapore, and Thailand increased by almost five times during this period, at the expense of the United States and the European Union.

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TABLE 1
ASIA AND THE PACIFIC: AREA AND POPULATION IN 2010

Country	Area[1] (square kilometers)	Estimated population[2] (thousands)
Afghanistan	652,230	34,385
Australia	7,741,220	22,329
Bangladesh	143,998	148,692
Bhutan	38,394	726
Brunei	5,765	399
Burma	676,578	54,585 [1]
Cambodia	181,035	14,138
China	9,596,961	1,338,300
Fiji	18,274	861
Hong Kong	1,104	7,068
India	3,287,263	1,170,938
Indonesia	1,904,569	239,871
Japan	377,915	127,450
Korea, North	120,538	24,346
Korea, Republic of	99,720	48,875
Laos	236,800	6,201
Malaysia	329,847	28,401
Mongolia	1,564,116	2,756
Nepal	147,181	29,959
New Caledonia	18,575	254
New Zealand	267,710	4,368
Pakistan	796,095	173,593
Papua New Guinea	462,840	6,858
Philippines	300,000	93,261
Singapore	697	5,077
Solomon Islands	28,896	538
Sri Lanka	65,610	20,860
Taiwan	35,980	23,162 [3]
Thailand	513,120	69,122
Timor-Leste	14,874	1,124
Vietnam	331,210	86,936
Total	29,959,115	3,785,433
World total	148,940,000	6,840,507 [2]

[1]Source: U.S. Central Intelligence Agency, The World Factbook 2011.

[2]Source: The World Bank, 2011 World Development Indicators Database.

[3]Source: Statistics Monthly, Accounting and Statistics, Executive Yuan, Taiwan, September 2011.

TABLE 2

ASIA AND THE PACIFIC: GROSS DOMESTIC PRODUCT IN 2010[1, 2]

Country	Gross domestic product based on purchasing power parity		Real gross domestic product growth rate (percentage)		
	Gross value (million dollars)	Per capita (dollars)	2008	2009	2010
Afghanistan	27,443	909	3.6	20.9	8.2
Australia	883,807	39,764	2.6	1.4	2.7
Bangladesh	260,536	1,585	6.0	5.9	6.4
Bhutan	3,882	5,510	4.7	6.7	8.3
Brunei	20,149	48,333	-1.9	-1.8	2.6
Burma[3]	78,340	1,300	11.9	5.1	5.5
Cambodia	30,271	2,118	6.7	-2.0	6.0
China	10,119,896	7,544	9.6	9.2	10.3
Fiji	3,.988	4,481	1.0	-1.3	0.3
Hong Kong	327,232	45,944	2.3	-2.7	7.0
India	4,057,787	3,408	6.2	6.8	10.1
Indonesia	1,032,952	4,347	6.0	4.6	6.1
Japan	4,323,504	33,885	-1.2	-6.3	4.0
Korea, North[3]	40,000	1,800	-0.4	-0.9	4.0
Korea, Republic of	1,466,125	29,997	2.3	0.3	6.2
Laos[3]	16,120	2,500	7.8	7.6	7.9
Malaysia	416,535	14,744	4.8	-1.6	7.2
Mongolia	11,075	4,020	8.9	-1.3	6.4
Nepal	35,759	1,269	6.1	4.4	4.6
New Caledonia[4]	3,158	15,000	NA	NA	NA
New Zealand	118,522	27,130	-0.1	-2.0	1.7
Pakistan	467,197	2,721	3.7	1.7	3.8
Papua New Guinea	14,991	2,307	6.6	5.5	7.0
Philippines	368,546	3,920	4.2	1.1	7.6
Singapore	292,829	56,694	1.5	-0.8	14.5
Solomon Islands	1,649	3,122	7.3	-1.2	6.5
Sri Lanka	105,460	5,169	6.0	3.5	8.0
Taiwan	824,671	35,604	0.7	-1.9	10.9
Thailand	589,005	9,221	2.6	-2.4	7.8
Timor-Leste[3]	3,162	2,900	11.0	12.9	6.1
Vietnam	277,391	3,143	6.3	5.3	6.8
Total	26,217,994	XX	XX	XX	XX
World total[5]	63,123,888	XX	XX	XX	XX

NA Not available. XX Not applicable.

[1]Source: International Monetary Fund, World Economic Outlook Database, September 2011.

[2]Gross domestic product listed may differ from that reported in individual country chapters owing to differences in source or date of reporting.

[3]Based on 2008 to 2010 estimates. Source: U.S. Central Intelligence Agency, The World Factbook 2011.

[4]Based on 2003 estimate. Source: U.S. Central Intelligence Agency, The World Factbook 2011.

[5]Source: World Bank, 2012.

TABLE 3

ASIA AND THE PACIFIC: SELECTED EXPLORATION ACTIVITY IN 2010[1]

Country	Type[2]	Site	Commodity	Company	Resources[3]
Australia	E	Doolgunna	Au, Ag, Cu	Sandfire Resources NL	474,000 oz Au, 3.75 Moz Ag, 470,000 t Cu (ID).
Do.	P	Frog's Leg	Au	La Mancha Resources Inc.	714,000 oz Au (T).
Do.	E	Lake Giles	Iron ore	MacArthur Minerals Ltd.	323 Mt Fe (IF).
Do.	E	Rannes	Au, Ag	Solomon Gold plc.	79,000 oz Au, 7.9 Moz Ag (IF).
Do.	E	Springfield	Cu, Au	Talisman Mining Corp.	Data not released.
China	P	Jiama	Cu, Au, Ag, Mo, Pb, Zn	China Gold International Resources Corp.	0.89 Mt Cu, 1 Moz Au, 56 Moz Ag, 41,000 t Mo, 85,000 t Pb, 53,000 t Zn (R).
Do.	P	Jinfeng	Au	Eldorado Gold Corp.	3.2 Moz Au (R).
Papua New Guinea	E	Golpu	Cu, Au, Mo	Harmony Gold Mining Company Ltd.	800,000 t Cu, 1.4 Moz Au, 8,500 t Mo (R).

Do. Ditto.

[1]Abbreviations used for commodities in this table include the following: Ag—silver; Au—gold; Cu—copper; Fe—iron ore; Mo—molybdenum; Pb–lead; Zn–zinc.

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

[2]E—active exploration; P—exploration associated with producing site.

[3]Based on 2010 data reported from various sources; ID—indicated; IF—inferred; R—proven–probable; T—total resource. Resource data not verified by the U.S. Geological Survey.

TABLE 4

ASIA AND THE PACIFIC: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2010[1]

(Thousand metric tons unless otherwise specified)

	Metals										
				Copper		Gold, mine	Iron and steel			Lead	
							Iron				
	Aluminum			Mine output,	Refined,	output, Au content	Ore, gross			Mine output,	Refined,
Country	Alumina	Bauxite	Metal[2]	Cu content	primary	(kilograms)	weight	Pig iron	Steel, crude	Pb content	primary
Afghanistan	--	--	--	--	--	--	--	--	--	--	--
Australia	19,956	68,414	2,058	849	417	261,000	433,000 e	6,000 e	7,140	625	178
Bangladesh[e]	--	--	--	--	--	--	--	--	--	--	--
Bhutan	--	--	--	--	--	--	--	--	--	--	--
Brunei[e, 3]	--	--	--	--	--	--	--	--	--	--	--
Burma[e]	--	--	--	12	12	100	--	2	25	7	(4)
Cambodia	--	--	--	--	--	--	--	--	--	--	--
China[e]	29,000	44,000	20,200	1,160	2,950	345,000	1,070,000	597,330 5	637,230 5	1,850	2,840
Christmas Island	--	--	--	--	--	--	--	--	--	--	--
Fiji	--	--	--	--	--	1,856	--	--	--	--	--
Hong Kong[3]	--	--	--	--	--	--	--	--	--	--	--
India[e]	4,000	18,000	1,450	33	665	--	230,000 5	38,685 5	68,300 5	95	67
Indonesia[e]	--	1,050	252	878 5	280	106,316 5	--	--	3,700	--	--
Japan	300 e	--	180	--	1,334	8,544	--	82,283	109,599	--	102
Korea, North[e]	--	--	--	12	15	2,000	5,300	900	1,300	13	9
Korea, Republic of	--	--	--	(4)	564 e	235	513	31,228	58,912	1	198
Laos[e]	--	--	--	--	64 5	5,061 5	--	--	--	--	--
Malaysia	--	124	--	(4) e	--	3,766	3,466	--	5,693	--	--
Mongolia	--	--	--	125	3	6,037	3,203	--	64	--	--
Nauru	--	--	--	--	--	--	--	--	--	--	--
Nepal[e]	--	--	--	--	--	--	--	--	--	--	--
New Caledonia	--	--	--	--	--	--	--	--	--	--	--
New Zealand	--	--	365	--	--	13,469	--	667 e	853 e	--	--
Pakistan[e]	--	32	--	18	--	--	290	1,000	1,100	26	--
Papua New Guinea	--	--	--	160 p	--	62,900 p	--	--	--	--	--
Philippines	--	--	--	58	172	40,847	--	--	800 e	--	--
Singapore	--	--	--	--	--	--	--	--	620 e	--	--
Solomon Islands	--	--	--	--	--	--	--	--	--	--	--
Sri Lanka[e]	--	--	--	--	--	--	--	--	--	--	--
Taiwan	--	--	--	--	--	--	--	9,358	20,498	--	--
Thailand	--	--	--	--	--	4,125	970	--	4,145	--	--
Vietnam[e]	--	80	--	11	8	3,500	1,060	800	4,314 5	7	--
Total	53,300	132,000	24,500	3,320	6,480	865,000	1,750,000	768,000	924,000	2,630	3,390
Share of world total	63%	61%	49%	21%	40%	34%	67%	75%	64%	63%	74%
United States	3,910	NA	1,730	1,110	1,060	231,000	49,900	26,800	80,500	369	115
World total	84,600	216,000	49,800	15,800	16,400	2,560,000	2,600,000	1,030,000	1,440,000	4,170	4,560

See footnotes at end of table.

TABLE 4—Continued

ASIA AND THE PACIFIC: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2010[1]

(Thousand metric tons unless otherwise specified)

	Metals								
			Nickel, metal content		Tin (metric tons)			Zinc (metric tons)	
Country	Manganese ore, mine output, Mn content	Mercury, mine output, Hg content (metric tons)	Mine output	Refinery products	Mine output, Sn content	Metal, primary	Tungsten, mine output, W content (metric tons)	Mine output, Zn content	Metal[2]
Afghanistan	--	--	--	--	--	--	--	--	--
Australia	3,100	--	170	108	7,000 e	3,000 e	16	1,479,000	505,000 e
Bangladesh[e]	--	--	--	--	--	--	--	--	--
Bhutan	--	--	--	--	--	--	--	--	--
Brunei[e, 3]	--	--	--	--	--	--	--	--	--
Burma[e]	(4)	--	(4)	--	4,000 5	30	163 5	7,000 5	--
Cambodia	--	--	--	--	--	--	--	--	--
China[e]	2,600	1,600	81	172	115,000	150,000	59,100	3,700,000	5,160,000
Christmas Island	--	--	--	--	--	--	--	--	--
Fiji	--	--	--	--	--	--	--	--	--
Hong Kong[3]	--	--	--	--	--	--	--	--	--
India[e]	1,000	--	--	--	--	--	--	385,000	601,000
Indonesia[e]	--	--	210	90	43,258 5	43,832 5	--	--	--
Japan	--	--	--	166 e	--	841	--	--	610,654
Korea, North[e]	--	--	--	--	--	--	100	70,000	75,000
Korea, Republic of	--	--	--	20 e	--	--	--	--	717,100
Laos[e]	--	--	--	--	350	--	--	3,400	--
Malaysia	--	--	--	--	2,668	38,737	--	--	--
Mongolia	--	--	--	--	--	--	20	112,600	--
Nauru	--	--	--	--	--	--	--	--	--
Nepal[e]	--	--	--	--	--	--	--	--	--
New Caledonia	--	--	130 p	40 p	--	--	--	--	--
New Zealand	--	--	--	--	--	--	--	--	--
Pakistan[e]	--	--	--	--	--	--	--	10	--
Papua New Guinea	--	--	--	--	--	--	--	--	--
Philippines	--	--	204	--	--	--	--	9,268	--
Singapore	--	--	--	--	--	--	--	--	--
Solomon Islands	--	--	--	--	--	--	--	--	--
Sri Lanka[e]	--	--	--	--	--	--	--	--	--
Taiwan	--	--	--	11 e	--	--	--	--	--
Thailand	24 e	--	--	--	291	20,000 e	600 e	25,529	100,000 e
Vietnam[e]	4	--	--	--	5,400 5	3,042 5	--	36,000	--
Total	6,730	1,600	795	607	178,000	259,000	60,000	5,830,000	7,770,000
Share of world total	46%	83%	44%	44%	71%	81%	89%	48%	63%
United States	--	NA	--	--	--	--	--	748,000	249,000
World total	14,600	1,930	1,790	1,390	251,000	320,000	67,200	12,100,000	12,400,000

See footnotes at end of table.

TABLE 4—Continued

ASIA AND THE PACIFIC: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2010[1]

(Thousand metric tons unless otherwise specified)

	Industrial minerals					Mineral fuels			
						Coal			
Country	Cement, hydraulic	Fluorspar (metric tons)	Graphite (metric tons)	Magnesite	Salt	Anthracite	Bituminous	Natural gas, dry (million cubic meters)	Petroleum, crude (thousand 42-gallon barrels)
Afghanistan	36	--	--	--	186	--	725	140 e	(4)
Australia	9,000 e	--	--	300 e	11,968	--	449,000	44,986	169,985
Bangladesh[e]	5,000	--	--	--	360	--	850	20,500	1,800
Bhutan	200 e	--	--	--	--	--	88	--	--
Brunei[e, 3]	300	--	--	--	--	--	--	11,400	63,000
Burma[e]	534 [5]	--	--	--	35	--	--	12,425 [5]	6,806 [5]
Cambodia	789	--	--	--	NA	--	--	--	--
China[e]	1,882,000 [5]	3,300,000	800,000	14,000	70,380 [5]	550,000	2,450,000	83,000	1,460,000
Christmas Island	--	--	--	--	--	--	--	--	--
Fiji	120 e	--	--	--	--	--	--	--	--
Hong Kong[3]	--	--	--	--	--	--	--	--	--
India[e]	220,000	7,600	140,000	345	17,000	--	480,000	32,000	260,000
Indonesia[e]	28,000	--	--	--	600	118,988 [5]	137,801 [5]	75,000	341,000
Japan	51,526	--	--	--	1,250 e	--	1,000 e	3,600 e	5,491
Korea, North[e]	6,400	12,500	30,000	150	500	41,000	--	--	--
Korea, Republic of	47,236	--	34	--	223	2,500	--	--	--
Laos[e]	400	--	--	--	35	--	--	--	--
Malaysia	19,762	--	--	--	--	--	2,397	62,670	232,100
Mongolia	323	400	--	--	2	--	25,246	--	2,181
Nauru	--	--	--	--	--	--	--	--	--
Nepal[e]	295	--	--	--	--	--	16	--	--
New Caledonia	138 p	--	--	--	--	--	--	--	--
New Zealand	1,100 e	--	--	--	95 e	--	5,330	4,432	19,302
Pakistan[e]	30,000	1,500	--	4	2,020	--	3,600	40,000	24,000
Papua New Guinea	--	--	--	--	--	--	--	100 e	12,500 e
Philippines	15,900	--	--	--	558	--	6,650	--	3,059
Singapore	--	--	--	--	--	--	--	--	--
Solomon Islands	--	--	--	--	--	--	--	--	--
Sri Lanka[e]	2,000	--	3,437 [5]	--	10	--	--	--	--
Taiwan	16,301	--	--	--	--	--	--	250 e	91
Thailand	36,496	20,000 e	--	--	1,200 e	--	--	29,583	55,906
Vietnam[e]	55,789 [5]	4,000	2,000	--	1,057 [5]	44,011 [5]	--	9,240	109,753 [5]
Total	2,430,000	3,350,000	975,000	14,800	107,000	756,000	3,560,000	429,000	2,770,000
Share of world total	72%	76%	83%	74%	39%	95%	66%	14%	10%
United States	67,200	--	--	W	43,300	1,760	916,000	611,000	2,000,000
World total	3,360,000	4,400,000	1,170,000	19,900	274,000	794,000	5,440,000	3,120,000	27,400,000

See footnotes at end of table.

TABLE 4—Continued

ASIA AND THE PACIFIC: PRODUCTION OF SELECTED MINERAL COMMODITIES IN 2010[1]

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

[1]Totals may not add due to independent rounding. Percentages are calculated on unrounded data. Table includes data available as of February 3, 2012.

[2]Primary and secondary production.

[3]Not in Minerals Yearbook, volume III.

[4]Less than 1/2 unit.

[5]Reported figure.

TABLE 5

ASIA AND THE PACIFIC: HISTORIC AND PROJECTED BAUXITE MINE PRODUCTION, 2000–2017[1]

(Thousand metric tons, gross weight)

Country	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	53,800	59,960	68,414	80,000	85,000	91,000
China	9,000	22,000	44,000	46,000	47,000	48,000
India	7,560	12,385	18,000	21,000	23,000	25,000
Indonesia	1,150	1,442	1,050	6,000	12,000	20,000
Malaysia	123	5	124	150	150	150
Other	9	33	110	1,000	1,300	1,300
Total	71,600	95,800	132,000	150,000	168,000	185,000

[e]Estimated.

[1]Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 6

ASIA AND THE PACIFIC: HISTORIC AND PROJECTED PRIMARY AND SECONDARY ALUMINUM METAL PRODUCTION, 2000–2017[1]

(Thousand metric tons)

Country	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	1,770	2,030	1,928	2,000	2,050	2,100
China	2,800	9,740	20,200	23,000	25,000	27,000
India	644	942	1,450	1,800	2,000	2,200
Indonesia	160	252	252	270	280	290
Japan	1,217	1,039	180	200	200	200
New Zealand	328	373	380	380	380	380
Other	--	--	--	800	1,000	1,000
Total	6,920	14,400	24,400	29,000	31,000	33,000

[e]Estimated. -- Negligible or no production.

[1]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 COBALT MINE PRODUCTION, 2000–2017[1]

(Metal content in metric tons)

Country	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	5,600	5,600	3,850	4,000	4,000	4,000
China	90	2,100	6,000	6,000	6,000	6,000
Indonesia	--	1,600	1,600	1,300	1,100	1,100
New Caledonia	--	--	--	4,200	6,700	6,700
Papua New Guinea	--	--	--	1,500	3,000	3,000
Philippines	--	300	2,200	2,500	5,000	5,000
Total	5,690	9,600	13,700	16,000	23,000	24,000

[e]Estimated. -- Negligible or no production.

[1]Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 8

ASIA AND THE PACIFIC: HISTORIC AND PROJECTED COPPER MINE PRODUCTION, 2000–2017[1]

(Metal content in thousand metric tons)

Country	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	829	930	849	1,100	1,200	1,250
China	593	762	1,160	1,300	1,400	1,450
India	32	27	32	36	38	39
Indonesia	1,010	1,064	878	900	1,000	1,100
Mongolia	125	127	125	200	400	800
Papua New Guinea	203	193	160	120	150	245
Philippines	130	16	58	65	70	75
Other	44	55	40	43	45	45
Total	2,970	3,170	3,300	3,800	4,300	5,000

[e]Estimated.

[1]Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 9

ASIA AND THE PACIFIC: HISTORIC AND PROJECTED REFINED COPPER METAL PRODUCTION, 2000–2017[1]

(Thousand metric tons)

Country	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	488	461	417	500	500	500
China	1,370	2,600	4,650	5,300	5,600	5,800
India	243	497	720	740	750	760
Indonesia	158	263	280	350	360	360
Japan	1,440	1,395	1,549	1,600	1,600	1,600
Korea, Republic of	468	519	541	540	550	600
Other	200	270	270	290	320	330
Total	4,360	6,010	8,420	9,300	9,700	10,000

[e]Estimated.

[1]Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 10

ASIA AND THE PACIFIC: HISTORIC AND PROJECTED GOLD MINE PRODUCTION, 2000–2017[1]

(Metal content in kilograms)

Country	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	269,000	263,000	261,000	280,000	300,000	320,000
China	180,000	225,000	345,000	370,000	390,000	400,000
Indonesia	125,000	130,620	106,316	120,000	130,000	140,000
Japan	8,400	8,300	8,544	8,300	8,200	8,000
Laos	--	6,232	5,061	7,000	8,000	8,000
Mongolia	11,800	24,120	6,000	13,500	23,500	28,500
New Zealand	9,880	10,583	13,469	12,000	12,000	12,000
Papua New Guinea	74,500	68,483	62,900	62,000	69,000	131,000
Philippines	36,540	37,490	40,847	43,000	45,000	47,000
Other	24,000	19,000	20,000	20,000	19,000	19,000
Total	739,000	793,000	869,000	935,000	1,000,000	1,100,000

[e]Estimated. -- Negligible or no production

[1]Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 11

ASIA AND THE PACIFIC: HISTORIC AND PROJECTED BENEFICIATED IRON ORE PRODUCTION, 2000–2017[1]

(Metal content in thousand metric tons)

Country	Average ore grade (% Fe)	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	62	107,000	163,000	271,000	330,000	350,000	370,000
China	64	73,600	134,000	350,000	410,000	420,000	430,000
India	64	48,600	97,500	166,000	170,000	172,000	174,000
Korea, North	NA	1,100	1,400	1,500	1,500	1,500	1,500
Other		1,420	1,630	2,500	2,500	2,500	2,500
Total		232,000	398,000	791,000	910,000	950,000	980,000

[e]Estimated. NA Not available.

[1]Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.

TABLE 12

ASIA AND THE PACIFIC: HISTORIC AND PROJECTED CRUDE STEEL PRODUCTION, 2000–2017[1]

(Thousand metric tons)

Country	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	7,300	7,790	7,140	8,000	8,100	8,100
China	129,000	353,240	637,230	730,000	750,000	780,000
India	26,900	45,800	66,800	72,000	74,000	76,000
Japan	106,400	112,470	110,000	115,000	118,000	120,000
Korea, Republic of	43,100	47,820	58,912	59,000	61,000	60,000
Malaysia	2,430	5,296	5,693	6,500	7,000	7,000
Taiwan	17,300	18,567	20,498	23,000	23,000	23,000
Thailand	2,100	5,161	3,645	4,000	4,000	5,000
Other	6,000	7,800	12,000	14,000	17,000	17,000
Total	341,000	604,000	922,000	1,030,000	1,060,000	1,100,000

[e]Estimated.

[1]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 PALLADIUM MINE PRODUCTION, 2000–2017[1]

(Metal content in kilograms)

Country	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	812	550	650	650	700	700
China	350	450	650	650	700	700
Total	1,160	1,000	1,300	1,300	1,400	1,400

[e]Estimated.

[1]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 PLATINUM MINE PRODUCTION, 2000–2017[1]

(Metal content in kilograms)

Country	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	171	111	130	200	200	200
China	650	700	750	1,000	1,000	1,000
Total	821	811	880	1,200	1,200	1,200

[e]Estimated.

[1]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 TIN MINE PRODUCTION, 2000–2017[1]

(Metric tons)

Country	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	9,146	2,819	7,000	6,000	6,000	6,000
China	99,400	126,000	115,000	120,000	110,000	110,000
Indonesia	55,624	78,404	43,258	45,000	44,000	42,000
Malaysia	6,307	2,857	2,668	2,500	2,500	2,500
Thailand	1,930	158	153	150	150	150
Vietnam	1,800	5,400	5,400	5,400	5,400	5,400
Other	1,150	1,540	1,200	1,300	1,400	1,500
Total	175,000	217,000	175,000	180,000	170,000	170,000

[e]Estimated.

[1]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 TIN METAL PRODUCTION, 2000–2017[1]

(Metric tons)

Country	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	1,033	994	3,400	2,000	2,000	2,000
China	112,000	122,000	150,000	165,000	170,000	180,000
Indonesia	47,129	65,300	43,832	45,000	50,000	55,000
Japan	593	754	841	900	920	940
Malaysia	26,228	36,924	38,737	40,000	40,000	40,000
Thailand	17,076	31,600	19,423	20,000	23,500	30,000
Other	1,830	1,800	3,100	3,000	3,500	3,500
Total	206,000	259,000	259,000	276,000	290,000	310,000

[e]Estimated.

[1]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 DIAMOND PRODUCTION, 2000–2017[1]

(Thousand carats)

Country	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	26,600	34,307	10,000	11,000	11,000	11,000
China	1,150	100	100	100	100	120
India	57	58	50	48	45	45
Indonesia	30	30	37	40	40	40
Total	27,800	34,500	10,000	11,000	11,000	11,000

[e]Estimated.

[1]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 LITHIUM PRODUCTION, 2000–2017[1]

(Metal content in metric tons)

Country	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	2,300	4,800	8,200	10,000	15,000	15,000
China	3,000	3,600	5,100	5,200	5,300	5,300
Total	5,300	8,400	13,000	15,000	20,000	20,000

[e]Estimated.

[1]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 SALABLE COAL PRODUCTION, 2000–2017[1]

(Thousand metric tons)

Country	2000	2005	2010	2013[e]	2015[e]	2017[e]
Australia	313,000	370,000	499,000	530,000	540,000	560,000
China	957,000	2,260,000	3,240,000	3,500,000	3,700,000	3,900,000
India	335,000	360,000	507,000	510,000	520,000	530,000
Indonesia	102,015	192,920	256,789	270,000	273,000	275,000
Japan	3,130	1,114	1,000	500	--	--
Korea, North	22,500	23,500	41,000	40,000	40,000	40,000
Korea, Republic of	4,170	2,832	2,500	2,600	2,700	2,800
Mongolia	5,185	8,256	25,246	30,000	30,000	30,000
New Zealand	3,586	5,267	5,335	6,000	6,000	6,000
Pakistan	3,116	3,367	3,600	3,800	4,000	4,200
Philippines	1,218	3,165	6,650	6,700	7,000	7,000
Thailand	17,786	23,689	26,362	25,000	25,000	25,000
Vietnam	11,609	34,093	44,011	50,000	50,000	50,000
Other	837	1,530	3,500	3,600	3,600	3,600
Total	1,780,000	3,290,000	4,660,000	5,000,000	5,200,000	5,400,000

[e]Estimated. -- Negligible or no production.

[1]Estimated data and totals are rounded to no more than three significant digits; may not add to totals shown.