

## KOREA (REPUBLIC OF)

*By Kim, Sang Gil*  
*Mineral Resources Information Center*  
*KORES*

The Republic of Korea covers some 98,000 km<sup>2</sup> and is about one-tenth the size of Canada. However, it has a population of more than 48 million, 50% higher than Canada. Korea's economy has burgeoned over the past two decades, driven by the industrial sector, mainly electronics telecommunications, car manufacturing, chemicals, shipbuilding and steel. The strong economic growth faltered in 2003, the Iraq War and the nuclear issue in North Korea both being factors, and year-on-year GDP growth slowed from 7.0% in 2002 to 3.1%. Even so, *per capita* real gross national income (GNI) rose from US\$11,493 to US\$12,646, and nominal GDP increased by 10.7% to US\$605.2 billion (US\$546.9 billion). Industrial output contributes about 36% of GDP, services 60% and agriculture less than 4%.

Since Korea lacks a significant mineral resource endowment, it must rely on outside sources to meet its increasing demand for minerals. Not only is Korea likely to increase its mineral imports rapidly, but it is also expected to invest increasingly in overseas mineral industries.

At the end of 2003, 101 overseas mining industry projects had been executed, of which 38 projects were in the exploration phase, 43 in the development or production phases and 20 suspended. The total investment in these projects amounted to US\$1.81 billion at the end of 2003. The principal activities concern coal projects in Australia, Indonesia and North America, copper projects in Peru and Kazakhstan, lead and zinc in North America and Australia, and gold projects (mainly exploration) in Mali, Mongolia and Papua New Guinea.

The mining industrial production index (IPI; unadjusted for seasonal variation and based on 2000=100) recorded 108.7 in 2003, compared with 108.6 in 2002. The IPI for energy resources (coal, oil and uranium) was 93.6 (88.1); for metal ore, the index rose sharply to 263.1 (172); and for non-metal ore it dipped to 104.8 (109.3).

As of end-2003, a total of 503 mines were operating, including nine coal mines and 19 metalliferous mines, the latter including 13 gold operations and one iron-ore mine. Non-metallic operations included 155 for kaolin, 141 for limestone mines and 49 for quartzite.

The value of South Korea's mineral production in 2003 totalled US\$1.79 billion, comprising only US\$1.53 billion for non-metal ore (85.3%), US\$257 million for coal (14.3%) and US\$7 million for metal ore (0.4%),

Mineral trade in 2003 consisted of total ore imports of US\$8.60 billion, an increase of 19.2%, and exports of US\$2.19 billion, an increase of 49.5%. The

major imports in 2003 were gold (US\$2.87 billion); bituminous coal (US\$2.27 billion), iron ore (US\$1,08 billion), copper concentrates (US\$850 million), enriched uranium (US\$292 million), zinc concentrates (US\$311 million) and lead (US\$156 million).

### **Coal**

Anthracite production amounted to 3.29 Mt in 2003 (3.31 Mt in 2002). About 38% of the anthracite is produced by Korea Coal Corp, which produced 1.23 Mt from three mines, Changsung, Hwasoon and Dogae. Kyungdong Coal Mining Co, which operates Korea's largest coal mine, produced 1.06 Mt.

Korea's imports of bituminous coal rose by 0.5% and were worth US\$2.27 billion. Shipments were received from Australia (worth US\$951 million), China (US\$833 million), Indonesia (US\$195 million) Canada (US\$170 million), and Russia (US\$112 million).

Korea Electric Power Corp (Kepeco) is Korea's principal buyer of steam coal and is the government's power monopoly. As of April 2001, Kepeco was split into six separate power generation companies. One company is handling nuclear power generation and five companies are non-nuclear generation companies.

The Ministry of Commerce, Industry and Energy has set out a five-year plan for the coal industry that calls for the closure of three to four coal mines by 2005, to be achieved by gradual production cuts. Current production costs are 2.5 times higher than international prices.

### **Iron and steel**

Iron ore production from the Shinyemi mine increased to 233,824 t in 2003, from 156,774 t in 2002. Of the total output, 188,051 t were supplied to Pohang Iron and Steel Co (Posco).

Production of titanium-rich ore from the Yeoncheon mine decreased to 114,660 t (142,726 t) and the ore was shipped to cement companies including Asia Co and Dongyang Co, as well as to Posco. A small amount was exported to Japan.

Crude steel production increased to 46.3 Mt in 2003 (45.4 Mt). Posco produced a record 28.9 Mt and reported sales of W14,400 billion, an operating profit of W3,100 billion and a net profit of W2,000 billion (in 2003 the average exchange rate was US\$1.00 = W1,192)

### **Non-ferrous metals**

The world's biggest zinc refiners, Korea Zinc Co Ltd and Young Poong Corp, produced 652,000 t of refined metal in 2003, compared with 608,000 t in 2002. Korea Zinc produced 428,000 t, close to the 430,000 t/y capacity at its Onsan plant. Young Poong's Sukpo plant has an annual capacity of 250,000 t.

LG Nikko Copper is South Korea's only copper producer and produced 519,000 t of electrolytic copper cathode in 2003 (404,500 t). Annual refinery capacity is 450,000 t at its Onsan plant and 60,000 t at its Janghang plant.

South Korea's only lead refiner, Korea Zinc, produced 168,000 t in 2003, as compared with 178,222 t in 2002. Annual capacity is 180,000 t.

South Korea possesses no aluminium smelting facility and imports of primary aluminium in 2003 totalled 287,007 t (172,423 t).

### **Non-metallic minerals**

Non-metallic mineral production accounted for 85% of the total value of Korea's mining industry. Limestone is the major non-metal mineral produced and of the total of 90.7 Mt produced in 2003, 70.4 Mt was used by the cement industry, 9.5 Mt in metallurgical applications, 7.4 Mt in chemicals and 3.4 Mt for other uses.

Other industrial minerals production included 3.1 Mt of kaolin, 2.9 Mt of quartz and 0.4 Mt of feldspar.