

# THE REPUBLIC OF KOREA

By Pui-Kwan Tse

The Republic of Korea's economy went through a period of transition in 1998. In late 1997, the economic miracle in the 1980's and 1990's turned into the economic crisis. Korea faced a sharp decline in foreign exchange reserves and the exchange rate. With the International Monetary Fund's \$58 billion bailout, the country barely avoided national bankruptcy. In 1998, the country's economy entered into a recession and the gross domestic product growth posted a decline of 5.3%, for the first time in 18 years (Bank of Korea, 1999). The decline was mainly caused by the contraction of domestic demand for goods and an increase in unemployment.

In 1998, the industrial growth by all sectors was sluggish. The construction sector shrank by 9% and the mining and manufacturing sector decreased by 7.4%, because both the private and the government sectors were affected by the financial crisis. In spite of the increasing number of foreign visitors, the service sector decreased by 3.4% because of the contracting of domestic consumption and international trade. Imports of raw materials—crude oil, iron and steel, and petroleum products—were down by more than 30%. Owing to the reduction in chemical products, electronics, machinery, and textiles, the total exports fell by 2.8% in 1998, compared with that of 1997. Exports of gold jewelry and iron and steel products showed positive growth (Bank of Korea, 1999). However, the country experienced a total trade surplus of \$39.88 billion in 1998, the largest ever (Korean Business Review, 1999).

The Korean Government had taken many necessary steps to restore its economic competitiveness and boost the confidence of international investors in its financial system. In the past, Korea emphasized external borrowing to finance its development. In 1998, the Government revised direct investment rules to attract more foreign investment, both direct and portfolio. Foreign equity limits were raised from 33% to 55% and all barriers were removed to allow foreign equity ownership in about 97% of Korea's industries. The Government tried to reduce its role in state-owned companies and many of them were being privatized. In the past, under the close relationship between the financial and corporate sectors and the protective auspices of Government-led development, Korean financial institutions established a rather entrenched pattern of reckless lending practices (Far Eastern Economic Review, 1999). The corporate sector suffered from massive amounts of debts as well as significant investment losses and low profitability in the past several years. The financial institutions were burdened with nonperforming loans and an eroded capital base. The Government closed 16 banks and 75 financial institutions and ordered conglomerates (chaebols) to

liquidate, sell, and merge their subsidiaries. The Government set the target for chaebols to achieve debt-to-equity ratios below 200% by yearend 1999. The Government offered chaebols incentives such as debt writeoffs and delays on debt repayment to encourage them to restructure. Other incentives for conglomerates to restructure included deferral of corporate tax, a 50% reduction on capital gains tax when assets are sold, non-inclusion of corporate income in any gains from these sales, and exemption from acquisition and registration taxes when business changes hands. The Korea Development Institute, the state-financed policy institute, warned that the recession could last 3 to 5 years if financial and corporate restructuring proceeded slowly (Asian Chemical News, 1998).

Economists believe that the restructuring of the industrial sectors will create more western style business practices in Korea. Corporate decisionmaking and accounting will become more transparent and more attention will be paid to shareholder value. Foreign investors will play a greater and more direct role in Korean industry. Chaebols will reduce their participation in every business and will focus on a few core business.

LG Metals Corp., the country's sole copper producer, decided to postpone the startup of its new 160,000-metric-ton-per-year (t/yr) copper smelter at Onsan until January 1999 because of insufficient stockpiles of concentrate. The Mitsubishi continuous copper smelting and converting process developed by Mitsubishi Materials Corp. of Japan will be used for the new smelter. The discussion of forming a joint venture between LG Metals and Japan's Metals Co. Ltd., Mitsui Mining, Marubeni Corp., and Nippon Mining was underway. LG Metals was expected to transfer asset capital and manufacturing facilities of its two copper refineries to the joint venture (Metal Bulletin, 1998f).

Because of financial difficulties, Daewoo Metals Co. Ltd. shut down its brass rod and tube plants in December. In 1997, the company lost more than 24.3 billion won and in the first 6 months of 1998, an additional 4.8 billion won loss was accumulated. The company met with its main creditors including Korean Exchange Bank and Korean Industrial Bank to discuss debt repayments to be delayed. Daewoo has brass rod and tube output capacities of 36,000 t/yr and 6,000 t/yr, respectively (Metal Bulletin, 1999a).

Since the economic downturn in late 1997, domestic steel consumption resulted in a drastic 36% decline in 1998. During 1998, crude steel production decreased by 7.8%. Flat rolled steel consumption was also hit by the slump in demand for cars and electric appliances. Slow demand in construction steel products caused several electric arc furnace (EAF)

producers—Dong Shin Special Steel Co. Ltd., Han Kook Steel & Mill Co. Ltd., Seoul Steel Co. Ltd., and Tongt Il Heavy Industry—to shut down their operations. Pohang Iron and Steel Co. Ltd. (Posco), the world's largest steel producer, scaled back its output of crude steel by 0.9 million metric tons (Mt) in 1998 (Metal Bulletin, 1999b). In the second half of 1998, nine EAF producers agreed to reduce their combined monthly production by about 30%, equivalent to 3 Mt through the end of 1999.

The recovery of the steel sector is closely tied to an increase in demand by steel-consuming sectors, principally construction and shipbuilding. The Government planned to boost construction activities through active funding of infrastructure projects in 1999. As a result of the cost-saving restructuring program in the past several years, orders for the shipbuilding sector was fully booked in 1999. Therefore, the demand on steel plates for the shipbuilding sector was expected to increase by 15% in 1999. The Korean Iron and Steel Association (Kisa) predicted that crude steel production would decline by about 3% and domestic steel consumption would increase slightly in 1999 (Metal Bulletin, 1998e). Domestic steel supply, however, continues to exceed demand, therefore, Korea is expected to export more than 10 Mt of steel and its products in 1999.

Korean steel producers faced dumping charges by steelmakers from Canada and the United States. Atlas Specialty Steels of Canada requested the Canadian Government to add the Republic of Korea to the list of nine nations facing charges of dumping stainless round bars into Canada in late 1998. U.S. steel producers were considering a dumping action against Korea's steel producers. Korea's rebar exported to the United States increased 10-fold in 1998 compared with that of 1997 (Metal Bulletin 1998d).

The Korean Ministry of Finance and Economy imposed dumping duties between 17.95% and 24.68%, excluding the 8% import duty, on Chinese silicomanganese. Nine Chinese exporters, Minmetals International Enterprises Development Co., Zunyi Ferroalloy Import and Export Co., Jiangxi Import and Export Co., Jiangxi Provincial Metals and Minerals Import and Export Corp., Hainan Provincial International Economic and Trade Center, China North Industries Hainan Corp., China Minmetals Minerals Import and Export Co. Ltd., China Metallurgical Import and Export Jiangxi Co., and Guangxi Bayi Ferroalloy General Works were allowed to export to Korea at a floor price of \$450 per metric ton or higher. The dumping duties were retroactive to March 10, 1998, and would apply until 2003 (Metal Bulletin, 1998b).

About 34% of U.S.-generated stainless steel scrap was exported and of that 63% went to Asia. Korea was the largest buyer of U.S. scrap. Because of the devaluation of the Korean won, the price of U.S. scrap was higher than neighboring countries' scrap, and therefore Korea's scrap buyers were trying to diversify their import sources. The Ministry of Trade, Industry, and Energy (MOTIE) urged steel companies to use more domestic steel scrap and to reduce their dependence on imported scrap. Reportedly, MOTIE offered financial and tax credits to scrap companies to encourage the development of new processing facilities (Metal Bulletin, 1998c). According to Kisa, scrap demand was about 20 Mt, of which 31% was

imported.

The Korean steel sector embraced the Government's incentives for corporate reform and restructuring. Four of the Republic of Korea's largest EAF producers—Dongkuk Steel Mill Co. Ltd., Incheon Iron and Steel Co. Ltd., Kangwon Industries Co. Ltd., and Korea Iron and Steel Co. Ltd.—formed a task force to find a way to acquire operations of several Korean steel companies that had formally declared bankruptcies in 1997. On December 9, 1998, the Government announced that the Korea Development Bank (KDB) successfully sold off a 5.87% stake in Posco through the issuance of depository receipts in the United States at a value of \$300.45 million. By yearend 1999, KDB was expected to sell a total of 20.93% of Posco's interest to domestic and foreign investors.

The Government also auctioned Hanbo Steel Corp. in 1998. Hanbo suspended its 2-million-metric-ton-per-year (Mt/yr) hot-rolled plant on July 1, 1998. Bankers Trust of the United States was appointed by the creditor banks to handle the bidding process. In December, there were only two bidders, NTS Steel Group of Thailand and Korea's Dongkuk Steel. The creditors, however, were not satisfied with these bids and decided to continue discussions with other potential buyers.

Posco decided to put its stainless steel joint-venture project with PT Metro Dwiwidjaja at Cikarang in Indonesia on an indefinite hold until the Indonesian economic situation improves. The plant was scheduled to be commissioned during the second half of 1999. Ground work began in December 1997. Posco was negotiating with Companhia Vale do Rio Doce of Brazil to purchase only 2.3 Mt/yr of iron ore pellets instead of 4 Mt/yr in the original contract.

As part of the company's restructuring plan, Posco decided to freeze its plan to build a 500,000 t/yr tinning line at the Pohang plant. The new plant would have increased the company's tinsplate capacity to 700,000 t/yr. The decision to freeze the tinsplate project was reached because of the oversupply of tinsplate especially for beverage cans as a result of the country's economic crisis. Posco also decided to delay the lighting of its No. 5 blast furnace, which was under construction at its Kwangyang plant until March 2001.

The country's Fair Trade Commission (FTC) launched a series of actions against Korean steel producers and Kisa for price-fixing. FTC fined four tinsplate producers a total of 8.65 billion won for allegedly fixing prices, transportation costs, and market shares on a pre-arranged basis. Three color-coated sheet producers, Dongbu Steel Co. Ltd., Pohang Steel Industries, and Union Steel Mfg Co. Ltd., were fined a total of 300 million won for alleged price-fixing. Eleven electric steel producers and Kisa were fined a total of 5.74 billion won for fixing scrap prices. FTC also instructed Posco to loosen its ties with its sales network. Almost all hot-rolled and cold-rolled sheet that Posco sold went through a network of licensed sales agents that were administrated by Posteel, a subsidiary of Posco (Metal Bulletin, 1998a).

Korea has a limited amount of zinc resources. Demand for zinc concentrates exceeds supply. Each year the country imports a large quantity of zinc concentrates mainly from Australia, Canada, China, and the United States for its

smelters. Korea Zinc Co. Ltd. announced that the expansion of its zinc refinery to 350,000 t/yr at Onsan would be completed in May 1999. At that time, imports on zinc concentrates are expected to reach 1 Mt/yr (Mining Journal, 1999).

Owing to an economic crisis, the Government delayed the announcement of an energy development program that was to be published in mid-1997. The program was expected to outline detailed plans for the state-owned Korea Electric Power Corp.'s (Kepco) plan for construction of new powerplants and for proposals on independent powerplant programs, along with long-term fuel consumption forecasts. The Government planned to increase the proportion of electricity generated from nuclear and coal-fired plants, while attempted to reduce the proportion from those from higher-priced fuel, including liquefied natural gas (LNG). The country lacks sizeable indigenous energy resources and depends on imports for its energy needs. The Government emphasizes developing the use of low-cost power generation in order to encourage high economic growth and to improve the living standards of its people. There are 13 nuclear units in service and account for 26% of Kepco's installed generating capacity. In terms of electricity output, nuclear power accounts for 38% of all electricity generated. Coal-fired stations account for about 24%, while oil-fired stations make up 23% and the remaining comes from LNG and hydroelectric power. In the future, the nuclear and coal-fired powerplants combined will generate about 70% of all electricity. The proportion of LNG-fired powerplant will increase to 15% because of the expected strengthening of pollution control regulations that require greater use of clean energy resources and are more fuel efficient (Petroleum Economist, 1998).

Kepco planned to increase a total installed generating capacity to 67,933 megawatts in 2005, a 45% increase over installed capacity in 1998. According to the Government plan, the country is expected to consume about 46 Mt of coal, including Kepco and privately owned plants, in 2005. At that time, the country will need to import about 8.5 Mt of LNG for its powerplants.

The Government planned to allow the private sector to participate in the construction of powerplants. The initiative was designed to reduce the financial burden on Kepco. Many potential local independent investors had been hit hard by the country's financial crisis, reducing their available funds. The Government was considering allowing foreign investors to participate in the power sector. The Government also tried to complete the privatization plan for Kepco. The intention to privatize the utility was announced in 1994, however, the plan remained under study.

The Government planned to open its oil refining and retail gasoline outlets to foreign investors. Foreign investors were only allowed a maximum of 50% ownership in one oil refining company and the gasoline station sector was closed to foreigners. The expansion of foreign investment is crucial to the restructuring the Korean oil refining sector. The country had five oil refineries with a combined output capacity of 2.4 million barrels per day (bbl/d) and a cracking capacity was 214,000 bbl/d, sufficient for domestic needs. It would be unlikely for foreign investors to build any new refinery in

Korea; however, they might take up a stake in an existing refinery, but some debt-burdened Korean oil companies would have difficulties attracting foreign investors (Journal of Commerce, 1998c).

Enron International, a subsidiary of Enron Corp. of the United States, and SK Corp. of the Republic of Korea discussed the acquisition of joint interests in gas companies in Cheongju, Daehan, Kumi, Pohang, and Pusan. Companies in these areas controlled about 20% of the Korean natural gas market and 50% of that for liquefied petroleum gas. SK would contribute its existing interest in these gas companies and Enron would contribute an equal amount of cash (Journal of Commerce, 1998a).

Korea Petroleum Development Corp. began to drill in an area 48 kilometers off the coast of Ulsan. The Gorae V prospect in the middle of Block VI-1 was believed to be the country's largest natural gas resource. The value of natural gas in the deposit might be worth about \$6 billion. The drilling was projected at the cost of \$10 million (Journal of Commerce, 1998b).

In Korea, the demand for petrochemical products increased dramatically from the mid-1980's, resulting from the increased production of automobiles, electricity, electronics, and construction that led to a shortage of petrochemical products. In the mid-1990's, production of petrochemical products exceeded domestic demand. Lately, the petrochemical sector became one of the nation's major exporters. Owing to the Asian economic crisis, petrochemical companies in the Republic of Korea reduced production in their plants. Most affected products were styrene, para-xylene, and xylene. Hyundai Petrochemical Co. decided to maintain production at an average of 80% of capacity from July 1998 onward. At the end of 1998, domestic petrochemical sales went up slightly but the volume remained 20% less than that in 1997.

## References Cited

- Asian Chemical News, 1998, Govt provides incentives: Asian Chemical News, v. 5, no. 194, p. 20.
- Bank of Korea, 1999, Current economic and financial movements: Bank of Korea, Quarterly Economic Review, March, p 3-18.
- Far Eastern Economic Review, 1999, Korea-South: Far Eastern Economic Review, Yearbook, p. 140.
- Journal of Commerce, 1998a, Enron buys into Korea gas: Journal of Commerce, December 14, p. 10A.
- 1998b, Korea gas seeks LNG partner: Journal of Commerce, July 31, p. 9A.
- 1998c, Korea speeds opening of oil refining: Journal of Commerce, April 1, p. 8A
- Korean Business Review, 1999, Trade balance returns to the black for first time since 1989: Korean Business Review, no. 215, February, p. 26.
- Metal Bulletin, 1998a, Anti-trust authority urges shake-up of Korean steel: Metal Bulletin, no. 8330, November 26, p. 19.
- 1998b, Korea imposes anti-dumping duties on Chinese Material: Metal Bulletin, no. 8308, September 10, p. 11.
- 1998c, Korean mills urged to use more home scrap: Metal Bulletin, no. 8245, January 19, p. 10.
- 1998d, Korea, Moldova face rebar dumping action USA: Metal Bulletin, no. 8339, December 31, p. 3.
- 1998e, Kosa predicts modest decline in 1999: Metal Bulletin, no. 8331, November 30, p. 19.
- 1998f, LG Metals continues negotiations with potential buyers: Metal Bulletin, no. 8317, October 12, p. 4.
- 1999a, Daewoo Metals resumes production: Metal Bulletin, no. 8347,

February 1, p. 3.

———1999b, Top steelmakers of 1998: Metal Bulletin, no. 8358, March 11, p. 14.

Mining Journal, 1999, Korea zinc refinery on schedule: Mining Journal, v. 332, no. 8516, January 29, p. 57.

Petroleum Economist, 1998, Delay in producing long-term electricity plans: Petroleum Economist, November, p. 26.

### **Major Sources of Information**

Korea Institute of Geology, Mining, and Materials  
30, Kajungdong, Yusongku, Taejon

Ministry of Trade, Industry, and Energy  
1, Chungang-dong, Kwach on, Kyonggi, Seoul

### **Major Publications**

Economic Planning Board, Seoul:  
Monthly Statistics of Korea.

Korea Energy Economic Institute, Seoul:  
Yearbook of Energy Statistics.

TABLE 1  
REPUBLIC OF KOREA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1994	1995	1996	1997	1998
<b>METALS</b>					
Bismuth, metal	--	--	--	112 r/	117
Cadmium, smelter	400 e/	1,665	501	570	884
Copper:					
Mine output, Cu content	5 e/	31	3	--	41
Metal:					
Smelter e/	224,000	223,000	225,000	225,000	226,000
Refined, primary	244,169	234,895	246,305	265,426	373,305
Gold, metal kilograms	12,332	13,418	14,096	14,872	22,822
Iron and steel:					
Iron ore and concentrate:					
Gross weight thousand tons	191	184	221	296	238
Fe content do.	107	103	124	166	133
Metal:					
Pig iron do.	21,169	22,344	23,010	22,712	23,092
Ferroalloys:					
Ferromanganese	120,020	118,798	214,000	238,000	158,000
Ferrosilicon	--	--	--	--	107
Ferrosilicomanganese	89,023	97,785	83,000 e/	83,000 e/	83,000 e/
Other	3,084	3,264	3,500 e/	3,264 r/	3,000 e/
Total	212,127	219,847	300,500 e/	324,264 e/	244,107 e/
Steel, crude thousand tons	33,745	36,772	38,903	42,554	39,896
Lead:					
Mine output, Pb content	2,173	4,064	5,131	3,632	3,558
Metal, smelter	86,457	129,744	88,584 r/	122,631 r/	132,143
Molybdenum, mine output, Mo content e/	2	--	--	--	--
Silver, metal kilograms	257,498	299,104	254,386	267,911	339,442
Zinc:					
Mine output, Zn content	7,122	7,747	8,384	8,992	10,488
Metal, primary	271,110	279,335	286,604 r/	335,390 r/	390,079
<b>INDUSTRIAL MINERALS</b>					
Asbestos e/	2,000	1,800	1,500	-- r/	--
Barite	85	90	80	105	--
Cement, hydraulic thousand tons	50,730	55,130	58,434 r/	60,317 r/	46,791
Clays, kaolin	2,675,485	2,792,139	2,501,600	2,688,489	2,259,809
Diatomaceous earth	82,738	81,303	69,543	53,538	37,649
Feldspar	319,658	367,578	319,112	341,018	248,493
Fluorspar, metallurgical-grade	--	--	--	617	--
Graphite, all types	4,300	1,938	1,113	83 r/	62
Mica, all grades	37,470	43,709	35,923	34,489	38,459
Nitrogen, N content of ammonia	573,900	615,800	599,100	508,800	510,000 e/
Salt e/	760,000	770,000	770,000	770,000	770,000
Soda ash, manufactured e/	310,000	310,000	320,000	320,000	320,000
Stone, sand and gravel:					
Limestone thousand tons	82,809	84,280	84,740	88,937	69,871
Quartzite do.	2,360	2,701	2,814	2,478	1,821
Sand, including glass sand do.	1,452	1,718	1,690	1,222	1,257
Sulfur, byproduct: e/					
Metallurgy do.	250	255	260	265	270
Petroleum do.	200	200	200	200	200
Total do.	450	455	460	465	470
Talc and related materials:					
Pyrophyllite	707,951	789,994	780,062	994,366	843,609
Talc	35,340	29,364	19,066	25,751	24,411

See footnotes at end of table.

TABLE 1--Continued  
 REPUBLIC OF KOREA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1994	1995	1996	1997	1998
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Carbon black	310,564	323,409	354,837 r/	425,605 r/	384,318
Coal, anthracite	7,438	5,720	4,978 r/	4,572 r/	4,356
Coke e/	5,700	5,700	5,800	5,700	5,700
Fuel briquets, anthracite briquets e/	11,000	13,000	12,000	13,000	12,500
Petroleum refinery products: e/					
Gasoline	37,000	38,000	71,372 r/ 2/	81,848 r/ 2/	76,388
Jet fuel	9,800	9,800	9,900	9,900	9,800
Kerosene	30,000	30,000	49,634 r/ 2/	71,128 r/ 2/	61,697
Distillate fuel oil	170,000	160,000	216,177 r/ 2/	262,255 r/ 2/	236,641
Residual fuel oil	180,000	180,000	227,842 r/ 2/	275,798 r/ 2/	205,397
Lubricants	4,000	4,000	4,100	4,100	4,000
Other	18,000	19,000	19,000	20,000	19,000
Refinery fuel and losses e/	4,000	4,000	4,000	4,000	4,000
Total e/	452,800	444,800	602,025	729,029	616,923

e/ Estimated. Revised.

1/ Table includes data available through June 20, 1999.

2/ Reported figure.

TABLE 2  
REPUBLIC OF KOREA: STRUCTURE OF THE MINERAL INDUSTRY IN 1998

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum, primary		Aluminium of Korea Ltd.	Ulsan	18
Bismuth, metal	metric tons	Korea Tungsten Mining Co. Ltd.	Sangdong	135
Cement		Ssangyong Cement Industrial Co. Ltd.	Yongwol	11,500
Do.		Hanil Cement Manufacturing Co.	Chungbuk	NA
Copper, metal		LG Metals Corp.	Changhang	50
Do.		do.	Onsan	175
Graphite		Kaerion Graphite Ltd.	Kangwon	25
Do.		Wolmyong Mining Co.	do.	26
Lead, metal		Korea Zinc Co. Ltd.	Onsan	135
Nickel, metal		Korea Nickel Corp.	do.	35
Steel		Pohang Iron and Steel Co. Ltd. (Government, 35%)	Kwangyang	11,400
Do.		do.	Pohang	9,400
Talc		Dongyang Talc Mining Co.	Chungju	NA
Zinc, metal		Korea Zinc Co. Ltd.	Onsan	200
Do.		Youngpoong Corp.	Sukpo	90

NA Not available.