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# South Korea: Moving up the Technology Ladder

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**An Intelligence Assessment**

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*June 1983*

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**An Intelligence Assessment**

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Comments and queries are welcome and may be
directed to the Chief, Northeast Asia Division, OEA,

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# South Korea: Moving up the Technology Ladder

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## Key Judgments

*Information available as of 9 June 1983 was used in this report.*

South Korea is embarking on an ambitious plan to restructure its industrial base in favor of skill- and knowledge-intensive industries. Seeking a second economic takeoff, the Chun government is targeting microelectronics, computers, machine tools, and sophisticated shipbuilding for rapid growth. Seoul is making this move armed with a broad set of policies aimed at encouraging manpower development, enhancing the country's research and development (R&D) capabilities, and attracting advanced technology from abroad.

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Seoul is taking steps similar to the successful industrial policies it employed during the country's first economic takeoff in the 1960s:

- Tax and credit favors to firms investing in designated industries.
- Sharply increased government spending on R&D and financial breaks to firms that also increase such spending.
- Cooperation between the country's nine public research institutes and the private sector.
- Liberalized regulations on foreign investment and the import of technology.
- Expanded university enrollments, scholarships, and overseas training programs.

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South Korean industrialists—backed with technical licensing agreements with multinational corporations—are following the government's lead and gearing up for massive investments in specified industries. For example, the largest South Korean conglomerate—Hyundai—will pour $450 million into semiconductor facilities over the next five years with plans to produce 750,000 silicon wafer starts annually later in the decade.

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South Korea has a number of factors working in its favor. It will graduate thousands of highly qualified engineers and scientists over the next decade, bolstering an already well-educated, adaptable, industrious work force. South Korean workers will remain a bargain; engineers are paid one-fourth to one-fifth the wages received in the United States and Japan. The size and diversification of South Korea's conglomerates will enable them to gamble on new products and commit large sums to developing new products. South Korean firms have demonstrated a strong capability to assimilate new technology. This, coupled with the Chun government's clear commitment to help, will give South Korean industry a leg up on its East Asian competitors among other newly industrialized countries (NICs).

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The speed and extent to which South Korea moves into these new lines of production will depend heavily on its success in dealing with several internal obstacles and on the rate of growth in the developed world. The South Koreans will need to strengthen their still relatively weak marketing skills and improve the quality control for medium-technology products. Seoul could face shortages of skilled labor despite its ambitious training program. Perhaps of greatest importance, the government must continue repairing the country's image among foreign investors if it is to attract needed inflows of foreign technology through joint ventures. Although many foreign companies have thrived in South Korea over the last several years, a number have charged that the government's policies have been arbitrary and unresponsive.

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South Korean Government and industrial leaders are moving aggressively to address these issues, and we believe they will make fairly rapid progress moving up the technology ladder. Seoul is likely to establish solid market niches in selected medium-technology products, particularly small computers, computer peripherals, and machine tools.

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Success for South Korea's industrial restructuring effort will result in a clear strategic gain for the United States by strengthening and enhancing the self-reliance of a key ally. In strictly economic terms there will be both costs and benefits for the United States. South Korean demand for advanced production equipment from the United States will increase, as will purchases of US consumer and agricultural products. US firms should also find greater opportunities for direct investment and technical licensing agreements. In addition, South Korean interests in trade and finance matters in international forums should coincide more closely with those of the United States.

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On the cost side, South Korea will increasingly compete with the United States in medium-technology products, creating the potential for considerable trade friction. South Korean officials are sensitive to the kind of strains that have characterized trade between the United States and Japan, and they clearly will seek to avoid similar problems. We doubt that South Korea will do much to slow the growth of their own sales to the United States, but we expect that Seoul will attempt to buy more from the United States to keep trade in balance.

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# South Korea: Moving up the Technology Ladder

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## Early Success in Light Industry

Over the past two decades the South Korean economy has emerged as one of the fastest growing in the world, in the forefront in both GNP gains and export expansion. Although growth stalled in 1980 and 1981, the economy has largely recovered; between 1962 and 1982 South Korean real GNP increased more than 8 percent annually and per capita income more than tripled in real terms.

Aggressive marketing of labor-intensive, light manufactured goods propelled the economy during the 1960s and early 1970s. Seoul's export-oriented development strategy took advantage of the country's low-cost, industrious labor force and strong consumer demand in the United States and Japan. Paced by textiles, footwear, plywood, and consumer electronics, foreign sales of light manufactured goods increased 44 percent annually between 1964 and 1975.

The government pursued an interventionist policy to push the economy in desired directions. It used a full range of tax and financial incentives and, most important, control over credit allocation to lead private investment into designated industries. And where private investors were unable or unwilling to invest, the government stepped in to establish state-owned entities.

## The Push to Heavy Industry

By the mid-1970s, South Korean economic planners recognized the increased competition in labor-intensive industries posed by lower cost producers such as China, India, and Malaysia. During the 1970s, South Korean wages rose almost 30 percent per year. In addition, South Korea's labor-intensive exports were being hit with a variety of import restrictions in developed-country markets

In response, Seoul embarked on an ambitious program to broaden the country's industrial base. Judging that it would gradually lose its comparative advantage in labor-intensive light industries, the government vigorously pushed a shift to capital- and technology-intensive heavy industries in its Fourth Five-Year Plan (1977-81). These included machinery, iron and steel, automobiles, shipbuilding, chemicals, and more sophisticated electronics. The push to heavy industry also complemented the country's plans to develop an indigenous defense industry.

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The private sector, responding to government financial incentives—especially subsidized credit—undertook massive investments in targeted heavy industries. Investment during 1977-79 increased 50 percent in real terms with 80 percent of manufacturing investment going into heavy industry. Benefiting from its relatively low labor costs, an ability to construct facilities in record time, and the utilization of the most modern equipment, South Korea quickly became competitive in world markets in steel and shipbuilding. Ship exports—consisting largely of bulk carriers and container ships—increased fivefold between 1979 and 1982, and South Korea ranked second in the world in production and exports by the early 1980s.

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In several of the new industrial areas, however, South Korean performance was below plan. In some cases—notably petrochemicals, heavy machinery, and autos—demand was well below expectations and the industries were saddled with substantial excess capacity. The second oil shock not only contributed to the softness in demand but also weakened Korea's competitiveness in sectors with high energy inputs. Seoul was also well below target for the electronics industry, largely because of a failure to upgrade technology.

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In retrospect, Seoul clearly overinvested in heavy industry while neglecting investment in light industries and technology upgrading. The misallocation of investment resources, coupled with a rigid exchange rate policy and overly stimulative fiscal and monetary policies, eroded South Korea's export competitiveness. As a result, real GNP growth slowed to 2 percent per year during 1980-82.

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**Table 1** *Percent of total*
**South Korea: Investment in Manufacturing by Sector**

| | 1977-81 Actual | 1982-86 Plan |
|---|---|---|
| Total | 100 | 100 |
| Light industry | 30.3 | 32.9 |
| Chemicals | 21.6 | 20.9 |
| Metals | 19.9 | 9.2 |
| Machinery (including electronics) | 28.2 | 37.0 |

**Table 2** *Percent*
**South Korea: Commodity Composition of Exports**

| | 1980 Actual | 1986 Plan |
|---|---|---|
| Total | 100 | 100 |
| Primary industry | 9.1 | 5.5 |
| Light industry | 47.6 | 39.5 |
| Chemicals | 4.5 | 2.7 |
| Steel and metals | 14.3 | 13.2 |
| Machinery | 19.7 | 32.6 |
| Of which: | | |
| General machinery | 2.1 | 4.1 |
| Electronics | 11.0 | 13.0 |
| Transport equipment | 6.6 | 15.4 |
| Other | 4.8 | 6.5 |

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## Focusing on Technology

Learning from its mistakes, South Korea is focusing on upgrading technology in the Fifth Five-Year Plan (1982-86). Emphasis is on investment in research and development and manpower development rather than in physical facilities for heavy industry. Skill- and knowledge-intensive industries, as opposed to capital-intensive industries, are being encouraged. The plan is focusing on a fairly narrow range of technology-intensive industries and light industries, in contrast to the broad expansion of heavy industry pursued in the fourth plan (see table 1).

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Seoul foresees extremely rapid growth in electronics (semiconductors, computers, and communications equipment), general machinery (machine tools and parts and components), and shipbuilding. Industries that use large amounts of energy— particularly steel, nonferrous metals, and petrochemicals—will grow slowly and output primarily will be to meet domestic demand. Improving quality will be the watchword for light manufacturing such as textiles, clothing, and footwear, as these industries move into the higher-value-added ends of product lines. The auto industry has been targeted for fairly strong growth, although the World Bank has advised Seoul to proceed cautiously.[1]

[1] South Korea has generally followed World Bank policy recommendations; it is required to do so to qualify for structural adjustment loans from the Bank.

The government is projecting rapid development in the targeted skill-intensive industries. By the mid-1980s Seoul intends to be producing large-scale integrated circuits, microcomputers, and sophisticated electronic switching systems. In shipbuilding, Korea expects to build more advanced types of ships and offshore equipment, including liquefied natural gas carriers. Seoul expects these knowledge-intensive industries to account for much of the growth in the country's exports in the 1980s (see table 2). According to official projections, machinery and equipment exports—including general machinery, electronics, and transport equipment—will increase 32 percent a year during 1982-86. Such a rapid rate of increase will be made easier because Seoul is starting from a small base; its machinery exports in 1981 totaled only $1.8 billion—less than 1 percent of the $250 billion world market.

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South Korean economic planners believe that the knowledge-intensive sectors they are targeting, with their relatively low energy requirements and high

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reliance on skilled labor, will best exploit the country's primary strength—its work force—while protecting it from its primary weakness—a lack of natural resources. The other East Asian NICs (Singapore, Taiwan, and Hong Kong) have opted for similar strategies. To a large extent this development path is a natural evolution for these countries as they continue following the Japanese model. The advance of the newly industrialized countries into the same fairly narrow range of medium-technology products, however, could lead to overcapacity as they compete for limited overseas markets. Just as South Korea and Singapore built too much petrochemical capacity, the four Asian NICs may be building too much capacity in medium-technology industries. Their leaders are betting on a robust demand for these products during the rest of this decade.[2]

**Supporting Policy**

Seoul is attempting to move up the technology ladder using a detailed set of policies. The Ministry of Science and Technology's Five-Year Research and Development Plan contains a wide range of policies to encourage manpower development, enhance domestic research and development (R&D), and attract foreign technology. As in the past, Seoul is providing generous tax and financial incentives to encourage firms to invest in targeted skill-intensive fields. The government is also providing benefits for spending on research and development and manpower development. These include a 10-percent tax deduction for such expenditures, deferred tariff payments on research equipment and facilities, and a five-year tax holiday for research facilities. Seoul is also protecting domestic producers from imports in selected industries, particularly computers and machine tools, by banning or severely restricting imports of such products.

***Upgrading Labor Skills.*** To meet the increased need for skilled workers in these more sophisticated industries, Seoul is implementing a broad-based program to upgrade educational and technical training. University enrollment is being expanded significantly, scholarships and research subsidies are being increased, and military exemptions are being granted to graduate students. In addition, overseas training programs and exchanges with prestigious foreign universities are being expanded. By 1991 the Ministry of Science and Technology plans to train 7,000 Koreans overseas, using government funds and grants. In sum, government spending on education will increase 80 percent in real terms during 1982-86 compared with the previous five years.

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Seoul is also putting priority on attracting Korean-American engineers and scientists from abroad. By granting higher salaries and good pensions, the Ministry of Science and Technology hopes to induce 2,250 professionals to return to Korea for research or teaching positions on either a permanent or short-term basis over the next five years. The Korea Advanced Institute of Science and Technology is already well along, having induced about 150 Ph. D.'s to return to Korea. In the private sector, Hyundai—South Korea's largest conglomerate—has repatriated several Korean-American scientists to oversee research on 64K RAM microchips.

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***Strengthening Public R&D Institutes.*** Seoul expects the country's nine government research institutes to play a major role in upgrading the nation's technological prowess (see box). These research institutes, staffed by a pool of well-trained and dedicated scientists and engineers, work closely with private firms in industry-oriented R&D. The Korea Institute of Electronics Technology, for example, is the center for the development of computer technology and semiconductors. The institute, located in the Gumi electronics estate in central Korea, is currently undertaking projects in home computers, software engineering and manufacture, computer-aided design, and integrated circuits. The Korea Institute of Machinery and Metal, located near the massive Ch'angwon industrial complex in the southeastern part of the country, focuses on projects relevant to the shipbuilding and steel industries.

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***South Korea: Public Research Institutes***

| *Name* | *Comment* |
|---|---|
| *Korea Advanced Institute of Science and Technology* | *The MIT of Korea—has both educational and research role—performs applied R&D directed toward commercialization by private firms—noted for using reverse engineering to avoid patent restrictions—top officials did graduate work at US universities.* |
| *Korea Advanced Energy Research Institute* | *Center for nuclear-energy-related research—comparable to US national laboratories such as Argonne or Oak Ridge—working on nuclear fuel fabrication technology and spent fuel waste management—top officials have technical backgrounds and degrees from US universities.* |
| *Korea Institute of Electronics Technology* | *Provides design and support for semiconductor and computer industries—employs about 250 people, one-third of whom are engineers—employs 15 Ph.D.'s with degrees from US universities.* |
| *Korea Institute of Machinery and Metals* | *Actively seeking to acquire advanced technology and adapt it to Korean needs—president has Ph.D. in engineering from Penn State.* |
| *Korea Institute of Energy* | *Major efforts are in minerals, geological surveys, and mining technology—building up R&D strength in coal utilization.* |
| *Korea Standards Research Institute* | *Helps domestic firms upgrade product quality and reliability by providing service for improving measurement practice.* |
| *Korea Electrotechnology and Telecommunications Research Institute* | *Research and testing of electrical and telecommunications systems.* |
| *Korea Research Institute of Chemical Technology* | *Established in 1976 at Taedok—research in chemical fields.* |
| *Korea Ginseng and Tobacco Research Institute* | *Established in 1978 in Seoul.* |

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Most of the other public research institutes are located in the Taedok science city in central Korea alongside private and university research institutes. These institutes are involved in a broad range of projects including the Korea Advanced Institute of Science and Technology's research into fiber optics and bioengineering. The Taedok science city is expanding rapidly and the Ministry of Science and Technology envisions a population of 50,000 people and 30 agencies by 1991. The science park will have a computer network, central information library, and expanded housing and infrastructure within a few years, all designed to enhance the private-sector's technological capabilities.

***Attracting Foreign Technology.*** South Korean economic planners also want to attract advanced technology from abroad to accelerate the move up the technology ladder. Seoul envisions the inflow of foreign investment increasing from the $100 million per year average of recent years to $700 million in 1986. To encourage this growth, the Ministry of Finance announced several policies late last year to improve the foreign investment climate. These measures expanded the number of industries eligible for foreign investment, reduced red tape, and allowed greater foreign equity shares in selected industries.

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Seoul also views technical licensing agreements and joint research projects as ways to attract foreign technology. The government has significantly liberalized regulations concerning technology imports and this has resulted in increased inflows of technology imports over the past several years. Joint research

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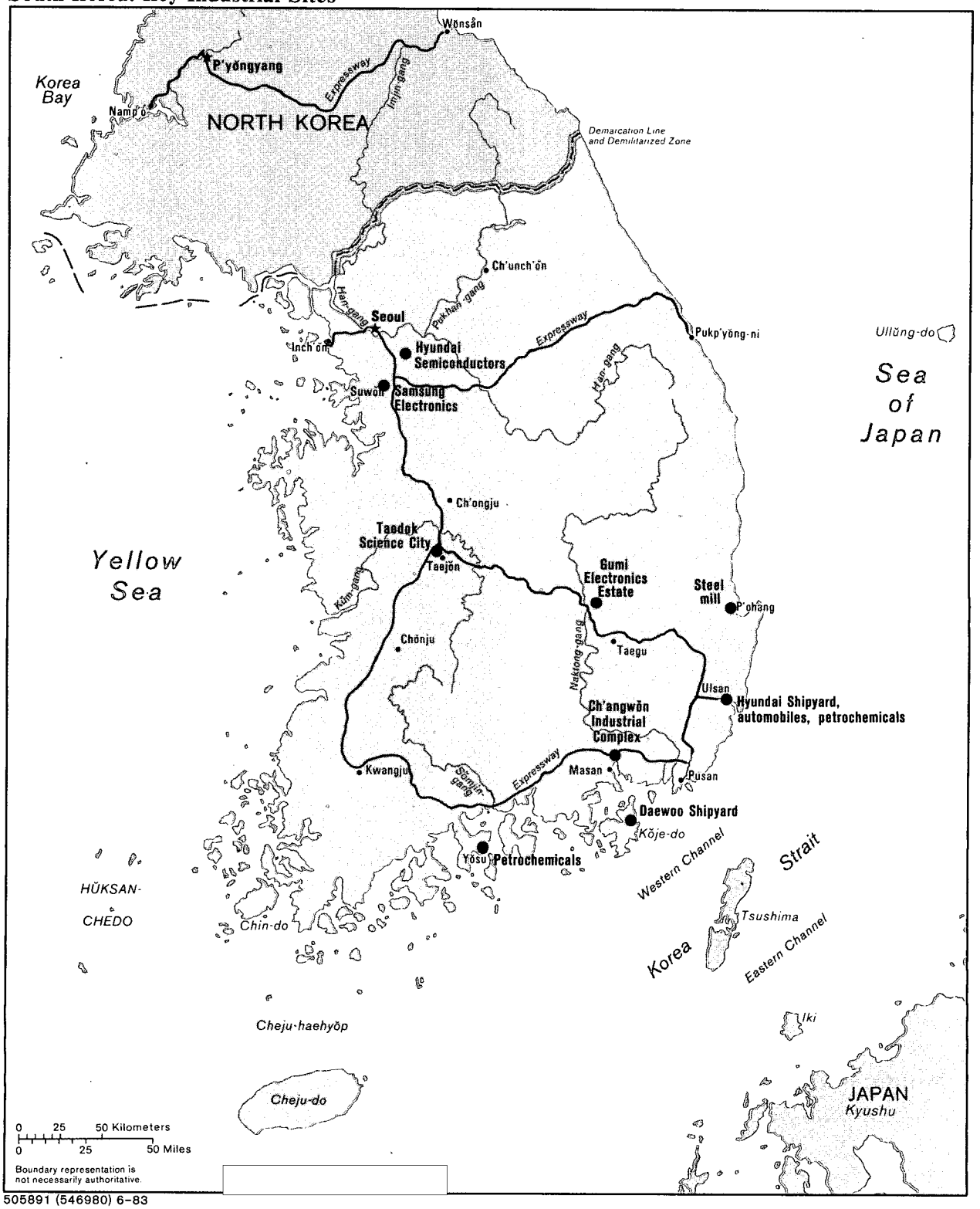
**South Korea: Key Industrial Sites**

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projects in mechanical engineering, genetic engineering, semiconductors, and communications technology are under way or planned with MIT, Bell Laboratories, and ITT. 25X1

***Increasing R&D Spending.*** Seoul projects a sharp increase in R&D spending over the next five years to facilitate the move into knowledge-intensive industries (see table 3). The Ministry of Science and Technology expects R&D spending to increase from the current 1 percent of GNP to 2 percent of GNP by 1986. According to press reports, Seoul will create a technology development fund, which will be financed by requiring government-invested firms to invest 3 percent of their income in the fund and providing tax incentives for private firms that do the same. 25X1

The importance the government attaches to upgrading the country's technological base is underscored by the recent initiation of quarterly science and technology review meetings in which the heads of the nation's research institutes make oral presentations to President Chun on their plans and progress. The meetings are patterned after South Korea's highly successful monthly trade promotion meetings, which over the years have contributed to the country's ability to respond quickly and flexibly to changing market conditions. 25X1

**Table 3**
**Selected Countries: Ratio of R&D Expenditures to GNP, 1980**

*Percent*

| | |
|---|---|
| South Korea | 0.7 |
| Taiwa [a] | 0.6 |
| United States | 2.3 |
| West Germany [a] | 2.3 |
| Japan | 2.0 |

[a] 1979 data.

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**Industry's Role**

Taking their cue from the government and armed with technical licensing agreements with multinationals from the United States, Japan, and Western Europe, South Korea's large conglomerates are gearing up for a major move into skill-intensive areas. Nowhere is this more apparent than in electronics. The inauguration of Hyundai Electronics in March symbolized the commitment of the country's largest conglomerate to a major thrust into electronics. Hyundai's president, Chong Chu Yong, announced a five-year, $450 million investment program to mass-produce semiconductor chips in facilities in South Korea and in California's Silicon Valley. Hyundai plans to produce 120,000 silicon wafer starts by 1984 and 750,000 wafer starts annually later in the decade. About half of the output is for use in the company's auto, shipbuilding, and power generation plants. 25X1

In preparing for its rush into more sophisticated electronics, the Samsung Company, Ltd., has recently merged its three electronics-related firms. Backed by a technical agreement with ITT, Samsung will pour $400 million into semiconductors and electronics projects over the next five years. The company plans to fabricate 32K RAM microchips beginning next year. With the start up of its joint venture plant with Corning Glass in Suwon in March, Samsung has already become a world-class competitor in one of the most difficult glass technologies, glass picture tubes for color televisions. 25X1

Gold Star, which has been in the forefront of Korea's electronics industry and has licensing agreements with Western Electric and Honeywell Information Systems, plans to turn out 64K RAM chips by 1984, a goal they can probably reach. According to press reports, the company's policy is to send large numbers of technical staffers to the United States each year for several weeks of training. 25X1

South Korean firms are also advancing into computers and robots. Samsung has a licensing agreement with Hewlett Packard for minicomputer production and three other Korean firms also will be making home computers this year. The Kolon group recently joined forces with Japan's Fanuc Corporation to set up South Korea's first plant to manufacture industrial robots. 25X1

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South Korean businessmen are seeking to move into other more technology-intensive industries. The Daewoo Corporation, for example, plans to move into more sophisticated machine tool production, including numerically controlled machine tools, and has licensing agreements with firms in the United States, Japan, and Western Europe. Hyundai will be upgrading its technological capabilities in the auto industry; the company has a technical licensing agreement with Mitsubishi to produce a front wheel drive car that will be marketed in the United States in the mid-1980s. South Korean shipbuilders—Hyundai and Daewoo—have licensing agreements with major European shipbuilders to bolster their move into more sophisticated ships. The Lucky group is moving into genetic engineering and will pump $80 million into such projects this year.

**Prospects**

***The Strengths.*** South Korea has a number of factors working in its favor in moving ahead with its industrial restructuring. The country's highly motivated, well-educated, adaptable work force remains a major advantage. South Korean schools will turn out thousands of highly qualified engineers and scientists over the next decade. According to government projections, the percentage of the school-aged population enrolled in higher educational institutes will increase from 16 percent in 1980 to 31 percent in 1986, roughly equal to the 34-percent ratio in Japan. The industriousness and skills of Korean graduates are acclaimed by businessmen worldwide. According to US industry specialists, engineering graduates from Korean universities are well trained even when compared with graduates of the best US schools.

From a cost perspective, South Korean engineers remain a solid bargain. Whereas a young engineer in the United States is paid $2,000 to $2,800 a month, a Korean electronics firm can hire four or five engineers for the same cost.

The size and diversification of Korea's major conglomerates give the country an important advantage over the other East Asian NICs. Whereas Taiwan has only two firms in Fortune's Top 500 firms outside the United States, South Korea has 10. Korean industrial giants—Hyundai, Daewoo, Samsung, Lucky—can afford to gamble on new products and take initial losses in the new, technology-intensive industries, offsetting the red ink with profits from their other business areas. They also have greater financial resources to commit to developing new products. In addition, South Korea's larger population and GNP give it a larger domestic market. 25X1

South Korea's demonstrated capabilities in assimilating new technology and the government's clear-cut commitment also augur well for the country's move upmarket. Seoul's backing—demonstrated by the massive sums it is spending on R&D and the support it is providing to the private sector through the public research institutes—gives Korean industry a leg up on its rivals. South Korea has already moved ahead of the other East Asian NICs (but not Japan) in semiconductors. The Korea Institute of Electronics Technology's facility in Gumi is starting production of 32K memory chips and plans to produce 64K chips next year. According to press reports the plant will be the largest in Asia outside of Japan. Seoul envisions a large domestic market absorbing much of the country's production; Hyundai and Daewoo, for example, project 40 to 50 percent of their chips going to firms in their own business groups. 25X1 25X1

***The Obstacles.*** The speed and extent to which South Korea succeeds in moving to more advanced technologies will depend on Seoul's success in dealing with several internal obstacles and on how rapidly international demand increases. The country will need to develop better marketing and quality control to demonstrate to consumers the reliability of its products in new, medium-technology goods. To date, the quality of many of these products has been poor. The domestically made Pony automobile and the country's consumer electronics are cases in point. Return rates on Korean electronics products purchased by American military personnel, for example, have been high. In our judgment South Korean industrialists—only recently turning their attention to the marketing aspects of the production process and the need for better quality products—will gradually improve in these areas. 25X1 25X1 25X1

Supplying enough skilled workers could present another obstacle. Despite its ambitious training program, South Korea will probably have difficulty meeting the demand for skilled workers, particularly scientists. According to the Ministry of Science and Technology estimates, the country will have a shortage of 30,000 scientists in 1991. This will probably mean that Korean scientists will continue to work long hours—often 12 hours a day.

Perhaps the most significant problem is the country's somewhat tarnished image among foreign investors. A number of foreign companies have charged that the policies of the South Korean Government have been arbitrary and unresponsive in recent years. Even though leaders in the Chun government have been working hard to ease investor worries, South Korea is lagging well behind Singapore and Taiwan in attracting foreign participation in its industrial restructuring effort (see table 4). Many observers, including the World Bank, believe that South Korea will not be able to meet its ambitious goals, especially in electronics, without larger inflows of foreign technology through joint ventures. Top government officials are aware of this need and liberalization measures have been announced. To date, these new regulations have not been fully implemented, in part because of resistance within some ministries. In recent months, however, officials in favor of increased foreign investment have gained greater influence, and we believe they will be successful in expanding and implementing policies more favorable to foreign interests.

A closely related problem is the reluctance of many companies in the developed world to provide advanced technology to South Korean firms. Japanese industrialists, in particular, fear the competitive threat posed by South Korea. Japanese firms have been unwilling to provide South Korea with advanced technology in the electronics, shipbuilding, and steel industries. The lack of South Korean patent protection has been the major factor in discouraging several US firms from sharing technology with South Korea. South Korea has been getting around this obstacle to some extent by pirating technology from advanced countries, particularly in the computer field for home computers and in video tape recorders.

**Table 4**
**East Asian NICs:**
**Direct Foreign Investment** [a]

*Million US $*

| | 1978 | 1979 | 1980 | 1981 |
|---|---|---|---|---|
| Singapore | 739 | 941 | 1,669 | 1,797 |
| Taiwan | 114 | 126 | 161 | 151 |
| South Korea | 89 | 36 | 8 | 101 |
| Hong Kong | NA [b] | NA [b] | NA [b] | NA [b] |

[a] Data are annual flows reported by IMF Balance-of-Payments Yearbook.
[b] Not available.

Internal factors aside, South Korean success in its industrial restructuring effort will hinge in large part on the rate of economic growth in the developed world. Even with strong domestic demand, much of Korea's output is targeted for OECD markets. South Korean licensing agreements with multinational corporations generally do not provide guaranteed markets for the output. As a result, import demand in the United States will be a major determinant of South Korean export performance.

***Significant Advances Coming.*** We do not foresee South Korea moving into a broad range of high-technology products. It lacks the size and financial capabilites to imitate Japan's broad industrial development, and its level of technology will remain well behind that of developed countries for at least the rest of the 1980s. But in our judgment, South Korea will be successful over the next five years in establishing market niches in selected medium-technology products. South Korea will:

- Move rapidly into more sophisticated products in the already established shipbuilding industry, further enhancing competitiveness in this sector.

- Make significant advances into selective medium-technology, skill-intensive areas such as machine tools, small computers, computer peripherals, and telecommunications equipment.
- Move rapidly into higher quality products in the traditional textile and footwear industries.

In shipbuilding Seoul hopes to expand exports from its current 8-percent share of the global market to about 10 percent, a gain that would be made largely at the expense of West European and Japanese firms. In microelectronics and machine tools, South Korean companies will be competing to some extent with both US and Japanese companies; in some cases the Koreans are aiming at product lines that US and Japanese firms are giving less emphasis to as they themselves move up to higher technology goods, such as in less sophisticated lathes and lower priced stereo equipment. Nonetheless, some small and medium-sized US companies are likely to feel the increased competition. In textiles and footwear Seoul's strongest competitors will be the other East Asian NICs.

**Implications for the United States**

Aside from the clear strategic gain for the United States resulting from a dynamic and successful South Korean economy, Seoul's move upmarket will create both economic costs and benefits for the United States. On the benefits side, it will generate increased import demand for advanced production equipment. According to the US Embassy in Seoul, demand will be particularly strong for analytical and scientific instruments, special machine tools and construction equipment, large-scale computers, industrial controls, telecommunications equipment, and electronics industry production and test equipment.

If price and quality are comparable, Seoul will favor US suppliers over Japanese or European firms. Seoul is sensitive to US-Japanese trade problems and works hard to keep its trade with the United States in balance by purchasing more from the United States. South Korea has a large deficit with Japan and discourages purchases from Tokyo where possible. Partly reflecting Seoul's "buy American" policy, the US in 1982 surpassed Japan as the largest supplier to South Korea for the first time in 15 years. Rising Korean incomes will also stimulate demand for US consumer goods and agricultural products.

In addition, South Korean interests in trade and finance matters in international forums should more closely coincide with those of the United States. Korean interests will increasingly lie with the developed rather than the developing countries on North-South issues. In the GATT, for example, Seoul is likely to be more supportive of the United States on trade issues. 25X1 25X1

Seoul's industrial restructuring will include substantial import liberalization resulting in easier access for US firms to the Korean market. US firms should also find increased opportunities for direct investment and technical licensing agreements as Seoul liberalizes its investment regulations. The Chun government, however, will go slowly in removing protection from the new industries it is fostering, especially machinery and electronics. 25X1

South Korea's new industrial policy will also create some problems for the United States. Korean exports to the United States are now made up largely of low-technology, labor-intensive goods such as textiles, footwear, and consumer electronics. As we have seen, however, during the 1980s South Korea will increasingly compete with US industry in medium-technology products—such as home computers, computer peripherals, and machine tools. 25X1 25X1

We do not expect the technology transfer issue to become a major problem in US–South Korean relations, at least in the near term. South Korea does not possess technologies sought by the Soviets and is unlikely to reach such a stage over the next two or three years. Beyond then, however, South Korea could produce goods sought by the USSR such as semiconductors, computer software, and telecommunication equipment. Because of political differences—which currently limit economic exchange to small amounts of indirect trade—we do not expect South Korea to be an important supplier to the Soviet Bloc. 25X1 25X1