

LESSONS FOR SOUTH ASIA FROM THE INDUSTRIAL CLUSTER DEVELOPMENT EXPERIENCE OF THE REPUBLIC OF KOREA

Jong-il Kim

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ABBREVIATIONS

ADB	-	Asian Development Bank
EPB	-	Economic Planning Board (Republic of Korea)
EPZ	-	export processing zone
FDI	-	foreign direct investment
GDP	-	gross domestic product
HCI	-	heavy and chemical industry
IT	-	information technology
KICOX	-	Korea Industrial Complex Corporation
PRC	-	People's Republic of China
R&D	-	research and development
SMEs	-	small and medium enterprises

I. INTRODUCTION

This report presents the industrial cluster development policy of the Republic of Korea and draws lessons from that experience for South Asia. It briefly reviews Korean industrial policy since the 1960s and identifies the success factors before studying the evolution of industrial cluster development in the country.

South Asia's recent economic growth, after the downturn experienced in the previous decade, has been strong, but it pales in comparison with East Asia's. To spur economic growth and reduce poverty in South Asia, industrial activity, particularly manufacturing, must expand. Many well-known empirical studies, such as that of Chenery, Robinson, and Syrquin (1986), indicate that low-income countries have to undergo industrial transformation—labor must shift from agriculture to other industries—to escape the poverty trap. South Asia's large rural population offers significant potential for economic growth, if better policies and institutions for industrial development are adopted. The Republic of Korea would be a good benchmark in this regard. Industrial development was a major engine of growth in that country. The government tried hard to promote industries by designing various policy measures and institutions. Government intervention, far from resulting in failure as it has often done in other countries, helped the Republic of Korea become a high-income industrialized country.

South Asian countries differ in population size and level of economic development, as Table 1 shows. The states of India have similar wide variations in size and economic activity, making it difficult to describe India on the basis of national-level indicators alone.¹ Therefore, this report does not prescribe a one-size-fits-all method of industrial cluster development for South Asia, but instead introduces the policy experience of the Republic of Korea in this regard, and the success factors, particularly in terms of policy implementation, that could promote industrial growth in South Asia as well. Although the Korean experience was not without its trials and errors, the government took the necessary policy measures and established support institutions to accomplish the goal once it was set.²

Section II is a very short review of South Asia's economic development in comparison with the economic development of East Asian countries including the Republic of Korea. It shows that industrial development, particularly the growth of manufacturing, is very important for economic growth and poverty reduction in the region.

Section III briefly traces the history of industrial policy in the Republic of Korea since the 1960s, with emphasis on the government's export promotion policies of the 1960s, and its aggressive support for heavy and chemical industries in the 1970s.

¹ Uttar Pradesh has a population of nearly 200 million, equivalent to Brazil's. Goa, a small state with a population of 14.6 million, had value added per capita of \$2,697 in 2009/10, three times higher than that of Bihar (\$786) (Cho, Choi, and Song 2011, 31).

² Amsden (1989) and Woo (1991), among many others, describe the Republic of Korea as a developing state that intervened vigorously in the economy to promote growth.

Section IV contains an overview of the evolution of industrial cluster development policy in the Republic of Korea, chiefly the construction of industrial parks on greenfield sites in the 1960s and 1970s. The shift in the country's industrial structure toward more technology- and knowledge-intensive industries made improvements in innovation a major policy concern. Building regional clusters that would encourage cooperation between industry and research was a way of addressing that concern. The large industrial complexes have expanded their reach since then as industrial production has grown, providing not only production space but also various services and support for the resident companies.

Finally, Section V enumerates the lessons applicable to industrial cluster development in South Asia. Even before the term "industrial cluster" became popular, the Republic of Korea constructed large-scale industrial parks to implement its major policy for industrial cluster development in an era of rapid industrial transformation. Valuable lessons may be learned from this experience to benefit large-scale industrial promotion in South Asia, such as the Economic Corridor Program in India. The Indian government targeted a gross domestic product (GDP) share of 25% for manufacturing by 2002 (ADB 2014) as part of its new manufacturing policy and has declared its intent to promote industries under the program, which tries to maximize integration between economic hubs in predefined regions of the country with large concentrations of resources.³

Moreover, the Indian government's Make in India initiative and particularly its East Coast Economic Corridor project call for the construction of trade infrastructure and support for industrial production clusters, to secure India's place in the global production network. The policy experience of the Republic of Korea would be relevant to achieving these export promotion and regional integration targets.

II. SOUTH ASIA'S INDUSTRIAL DEVELOPMENT AND THE CHALLENGES AHEAD

South Asia's Industrial Development versus East Asia's

South Asia consists of countries of varied size and income levels, as Table 1 shows. Except for Bhutan and Maldives, most South Asian countries are highly populated and have large numbers of rural poor. More than 60% of the population in most South Asian countries lives in the rural areas, compared with less than 50% in East Asian countries. The two subregions also differ in the industry share of value added: 40% for most East Asian countries, compared with less than 30% for most South Asian countries except for Bhutan, where hydroelectric power generation accounts for a large share of GDP. It is widely known that the engine of growth in East Asia is manufacturing for export, as the share of manufactures in total exports indicates. It is higher than 70% throughout the region except for resource-rich Indonesia and Malaysia.

³ The Economic Corridor Program may therefore be adequate for industrial promotion, which requires the strengthening of links. For a discussion of the economic corridor concept, see Brunner (2013).

Table 1: South Asia vs East Asia, 2013

Country	Population ('000)	GDP per Capita (current prices, \$)	Industry Share of Value Added (%)	Rural Population (% of total population)	Manufacturing Exports (% of merchandise exports)
South Asia					
Afghanistan	30,552	665	21.2	74.1	14.2
Bangladesh	156,595	958	27.6	67.2	92.8
Bhutan	754	2,363	44.6	62.9	68.6
India	1,252,140	1,499	24.8	68.0	61.9
Maldives	345	6,666	22.5	56.6	0.0
Nepal	27,797	694	15.7	82.1	68.7
Pakistan	182,143	1,275	21.1	62.1	74.0
Sri Lanka	20,483	3,280	32.5	81.7	69.8
East Asia					
China, People's Republic of	1,357,380	6,807	43.9	47.0	94.0
Indonesia	249,866	3,475	45.7	48.0	37.8
Korea, Republic of	50,220	25,977	38.6	18.0	86.2
Malaysia	29,717	10,538	40.5	27.0	60.8
Thailand	67,011	5,779	42.5	52.0	74.9

GDP = gross domestic product

Note: The GDP growth rate is the annual percentage growth rate of GDP at market prices based on constant local currency. No GDP growth rate data before 2003 are available for Afghanistan, and none before 2002 in the case of the Maldives. Industry comprises mining, manufacturing, construction, and utilities.

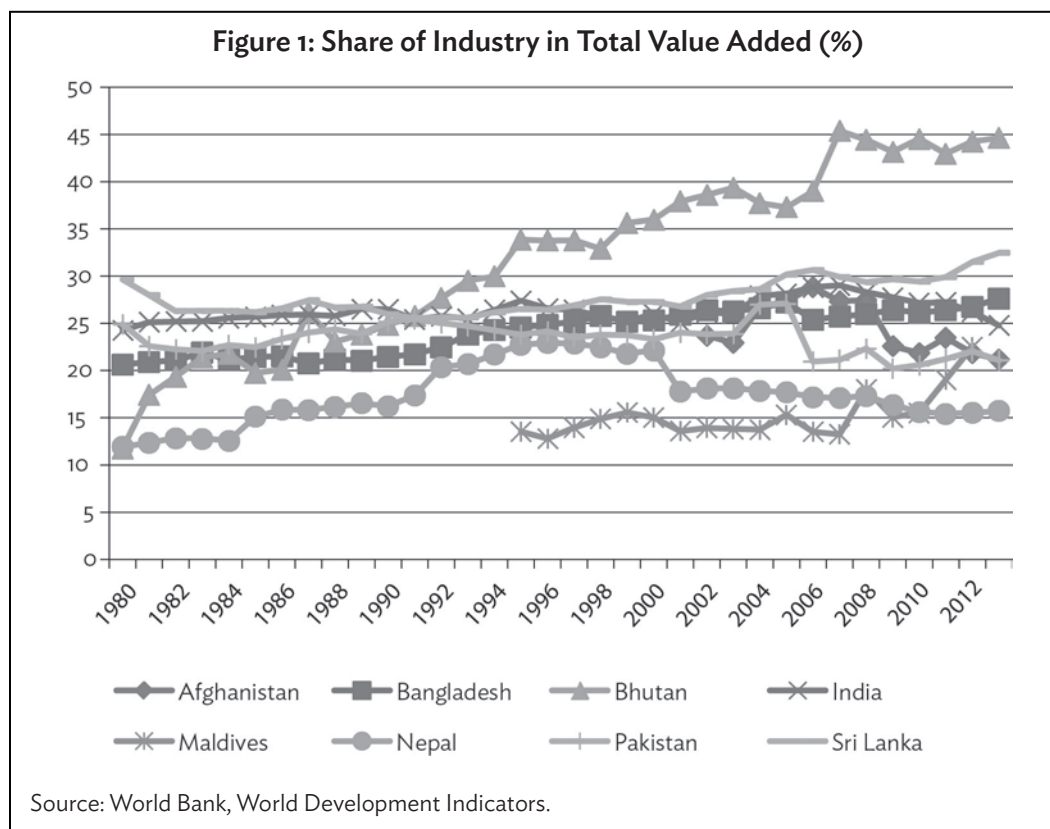
Source: World Bank, World Development Indicators.

The Republic of Korea is representative of the East Asian growth model. Resource-poor except for abundant underused labor resources, it became a high-income country in less than 3 decades. It was less developed than South Asian countries in the 1960s, at the start of industrial development. In 1965, industry's GDP share was 21.3% and 67.6% of the total population lived in the rural areas. Per capita GDP was \$105, or about \$598 if adjusted for inflation with the US GDP deflator.⁴ In 1965–1985, GDP grew by 9.1% yearly. Industry contributed 36.1% of GDP in 1985 and per capita GDP amounted to \$2,542 (\$4,730 in 2013 current prices). In 2013, industry's share of GDP was 38.1% and the rural population made up 17.1% of the total population.⁵ The continuous expansion of manufacturing exports through industrial diversification and upgrading made rapid growth possible.

⁴ GDP per capita in US dollars is not an adequate measure for comparison because of fluctuations in the exchange rate. It was \$834 in the Republic of Korea before the won was devalued in 1964. GDP per capita at the purchasing power parity (PPP) exchange rate would be a better measure of living standards. The figure mentioned here is provided only for rough comparison.

⁵ The data for the Republic of Korea are from the World Bank's World Development Indicators.

Most South Asian countries, on the other hand, have been industrially stagnant. The share of industry in total value added has stayed at less than 30% (Figure 1). The only exception is Bhutan, where hydroelectric power generation increased the industry share from 10% in 1980 to 45% in 2013. The figure for the share of manufactured exports in total exports is not much different from that shown in Figure 1.



For South Asia as a region to grow at continuously high rates, industrial development, particularly the growth of manufacturing in countries with a population of more than 20 million, such as India, Bangladesh, Pakistan, Nepal, and Sri Lanka, is critical. Services can spur economic growth, as evidenced by India's information technology (IT) industry and tourism in Nepal, but most developed countries became advanced economies largely because of manufacturing and industrial development.

Although represented as an increase in the GDP share of industry over time, industrial development accompanies continuous industrial transformation toward higher-value-added production. As the export structure of the Republic of Korea (Table 4 in Section III) indicates, exports of labor-intensive industries, such as textiles, plywood, and wigs gave rise to the country's initial spurt of industrial growth. Then the industry structure shifted toward more capital-intensive and technologically sophisticated industries, such as electronics, shipbuilding, and chemical products. Now, the major industries are research and development (R&D) intensive—semiconductors, mobile phones, and automobiles, among others. This experience is similar to that of other East Asian countries, with a time lag.⁶ Despite the ever-changing business environment and the constant need for a creative strategic response,

⁶ Japan was ahead of the Republic of Korea, which in turn was followed by the PRC. Global production sharing and rapid diffusion of technologies overseas have since shortened the time lag between leaders and followers in East Asia.

South Asia is expected to follow the industrial transformation path of East Asia from labor-intensive to capital- and technology-intensive industries.⁷ The stylized pattern of industrial development appears to be due to the nature of manufacturing, which requires coordination among interlinked industries with their differing demand for technology and know-how, well-trained technicians and workers, and sizable investment in equipment and facilities. The presence of foreign-invested enterprises and the rise in international production sharing may have reduced the lag, but all of the foregoing factors and the improvement of domestic industrial capacity for long-term industrial development still take time as well as experience to achieve.

Table 4 in Section III also shows the importance of labor-intensive manufacturing for industrial development. Textiles stayed atop the list of Korean exports for almost 3 decades even with the capital- and technology-intensive industry changes in the 1970s and 1980s. In 1985, textiles were the top export products and footwear came in fourth; these two accounted for about 16% of the country's total exports. Electronics, another leading export industry, derived its competitiveness from its ranks of well-trained assembly-line workers until the move toward technology-based industries, such as semiconductors. South Asian countries should therefore pay more attention to expanding their labor-intensive manufacturing sectors. Forward- and backward-linked production in labor-intensive industries, such as textiles, footwear, and various consumer goods, will not only help countries reduce poverty by creating jobs for unskilled workers but also provide the basis for further industrial development by offering opportunities for human resource development and technology upgrading. Jobs for skilled workers with higher education will open up as manufacturing advances into higher-value-adding activities. Manufacturing will grow once human capital is built through learning by doing.⁸

As the share of manufactured exports indicates, Bangladesh has attracted investments in garment manufacturing and enlarged its share of the world market, particularly in knitwear clothing. It gained a head start with the help of foreign investment from the Republic of Korea under the Multifiber Arrangement of 1979, and start-ups established by former employees of foreign-invested enterprises built on that initial advantage (Mottaleb and Sonobe 2011). Incentives, such as duty-free machinery import and land donations from the Bangladesh government, have helped the industry grow. But Bangladesh must diversify its export structure by promoting backward-linked fabric production and finding new sectors that could exploit the country's accumulated entrepreneurship and abundant labor.⁹ Other labor-intensive sectors apart from garment production, such as horticultural products, leather goods, light engineering products, and some chemical products, hold potential for comparative advantage (Mahmud 2003). In the long run, the country should move up the product ladder to higher-value-adding sectors as it becomes less able to compete on the basis of cheap labor. Figure 1 shows that the value-added share of industry has increased slowly despite the recent surge of over 90% in the share of manufactured exports. This implies a need for more value addition to generate higher income from exports.

Other South Asian countries must encourage the growth of labor-intensive manufacturing exports in sectors where they have a comparative advantage. Competitive pressure from the People's Republic of

⁷ India, a very large country with states in diverse stages of industrial development, from cottage industries to capital-intensive and IT service industries, would be an exception.

⁸ The Lucky-Goldstar (LG) group started as a small cosmetic cream factory, then built a plastic-molding plant to produce plastic caps for cream jars. It later expanded its product line to include combs, soaps, and other chemical products, thus laying the foundation for the establishment of LG Chem, a major chemical company that turns out basic materials and chemicals as well as advanced materials for electronics and rechargeable batteries for electronic cars. The LG story is told by the chairman of the LG group in Amsden (1989, 126).

⁹ Dependence on imported fabrics and yarns increases the lead time for meeting orders and works against the competitiveness of garment exporters. The domestic value chain for garment production must be extended to limit or avoid such dependence.

China (PRC) and other countries has not held back the emergence of new opportunities in manufacturing, especially given the PRC's higher-wage trajectory. The large population and wide range of industrial development in South Asia should enable the region, particularly India, to increase the contribution of manufacturing to GDP by giving various manufacturing sectors, including labor-intensive ones, more room to grow.¹⁰ The much-lower share of Indian manufactured exports (61.9%) relative to the PRC's (94.0%) suggests their potential for higher growth. The same potential exists in Pakistan, Nepal, Sri Lanka, and other populous countries. South Asia's most valuable resource is its cheap abundant labor. An economic development strategy focused on labor-intensive manufacturing would be consistent with its comparative advantage.

Challenges of Economic Reform for Industrial Development

The East Asian countries evidently got the basics right.¹¹ Unlike countries in other developing regions, they maintained a stable macroeconomic environment through prudent fiscal policies and competitive exchange rates, and were open to international trade and investment from abroad. The governments were active investors in education and infrastructure, and provided a favorable environment to business. Strong and effective government made all this possible. Although not democratic in the era of rapid growth, the Korean and Taipei,China governments gave sincere and constructive support for industrial development and economic growth.

The South Asian countries should likewise strive to get the basics right and narrow the reform gaps. To induce economic growth in South Asia, India, which accounts for 70% of the region's population and 80% of its GDP, should take a pivotal role in policy and institutional reform. However, its public sector finances are in chronic deficit. Internal and external trade barriers, price controls, and wasteful subsidies are still significant. The Indian government should actively seek foreign investments, which the PRC experience has shown to be crucial in expanding labor-intensive manufacturing. It should provide an adequate environment for foreign-invested enterprises to do business by building infrastructure and removing rigid regulations on land and labor.

Other countries in South Asia grapple with worse political and economic problems. Nepal and Pakistan are beset by political uncertainty and instability under a centralized state with arbitrary power, and by crime and insecurity and trade union militancy. ADB (2009) also noted Nepal's low availability of energy, weak industrial infrastructure, and other technology and human resource constraints—observations seconded by a mayor in Nepal in 2013 (Sapkota 2013). Pakistan's main problems are macroeconomic instability, poor infrastructure, and the threat of social unrest given the scarcity of employment opportunities for its large and growing labor force (Sánchez-Triana et al. 2014). Sri Lanka is relatively better off economically despite its long civil war, but has reportedly failed to take advantage of the opportunities following the end of the military conflict and has moved away from trade liberalization and back toward nationalist-populist state-centered economic policies (Athukorala and Jayasuriya 2012).

Although most South Asian countries adopted economic reforms in place of earlier inward-looking policies, their governments have been less than effective in implementing them.¹² The indicators in

¹⁰ According to Felipe, Kumar, and Abdon (2010), India's manufacturing sector has a smaller share of GDP than its counterparts in East Asian countries. The authors blame the negative effects of the policy bias toward the labor-intensive sector, such as the protection of labor-intensive small-scale enterprises. India's manufacturing sector, on the other hand, is relatively well diversified and sophisticated.

¹¹ See MacDonald et al. (1993).

¹² Sri Lanka introduced economic reforms relatively early, liberalizing its trade and investment regime in the late 1970s. The reforms made it possible for the country to grow despite the outbreak of civil conflict (World Bank 2004). Bangladesh also

Table 2 show a big gap between South Asia and East Asia in overall ease of doing business. Among the South Asian countries, Sri Lanka and Nepal rank relatively high but lower than the PRC. With regard to the components of doing business, the gap between the two regions in enforcing contracts, trading across borders, gaining access to electricity, and registering property is quite large.¹³

Table 2: Doing Business Indicators, 2014

	Overall Ease of Doing Business	Starting a Business	Dealing with Construction Permits	Getting Electricity	Registering Property	Getting Credit	Protecting Minority Investors	Paying Taxes	Trading Across Borders	Enforcing Contracts	Resolving Insolvency
Afghanistan	182	17	182	146	182	86	189	75	183	183	158
Bangladesh	170	111	142	189	183	125	43	78	140	188	146
India	140	156	183	134	115	30	21	154	122	186	135
Maldives	114	41	24	111	168	111	127	130	133	91	132
Nepal	109	97	126	78	29	111	70	120	169	134	78
Pakistan	127	109	121	145	111	125	19	168	112	161	81
Sri Lanka	105	101	60	100	124	86	50	167	85	165	68
China, People's Republic of	93	151	177	121	38	67	123	127	98	36	52
Indonesia	117	158	150	101	112	67	43	158	61	171	71
Korea, Republic of	5	16	12	1	78	30	26	24	3	4	5
Malaysia	20	12	39	28	74	19	5	31	10	30	65
Thailand	28	68	11	12	28	86	21	63	33	25	44
South Asia average	135	90	120	129	130	96	74	127	135	158	114
East Asia average	53	81	78	53	66	54	44	81	41	53	47

Note: The ranking covered 211 countries. The average rankings are simple averages of country rankings in each column.

Source: Doing Business DB (<http://www.doingbusiness.org/>).

If South Asia is to increase its presence in global supply chains, improving the business environment is the first and most important step. The region should also increase the volume of its intraregional trade. At present, South Asia is reportedly the least integrated region in the world, with intraregional trade accounting for less than 2% of the countries' combined GDP.¹⁴ In East Asia, intraregional trade is as high as 20% of regional GDP. Regional integration is important for smaller countries, particularly those that are landlocked, such as Afghanistan, Bhutan, and Nepal. Strengthening intraregional production networks would also benefit regional labor-intensive manufactured exports. India is very important in this regard, yet it does not provide the expected leadership in regional integration. While total outward investment by Indian multinational enterprises has increased rapidly, the intraregional share of total outward foreign direct investment (FDI) from India has shrunk, according to Athukorala (2013). Moreover, Indian overseas investment is mostly of the horizontal rather than the vertical type. India

embarked on economic liberalization in the mid-1970s but put off introducing a coherent reform plan until the mid-1980s. Nepal's economic reforms in the mid-1980s supported privatization and placed the country on an outward-oriented development path. India was rather late in adopting economic reforms: it introduced neoliberal economic measures in 1991.

¹³ This statement is based on the simple difference in average rankings between the two regions in Table 1.

¹⁴ From *The Economist* (2008) (<http://www.economist.com/node/12749743>).

should lead the region by initiating further regulatory reform, improving border management, and building infrastructure.

In sum, South Asia should continue to advance economic reform to foster a more open, liberalized economic environment, and invite both domestic and foreign enterprises to invest more in manufacturing. As many studies, including Athukorala (2013), suggest, for South Asia to increase its presence in global production networks, it needs more than cheap abundant labor. It should raise productivity by developing human capital, and lower the cost of service links by building infrastructure and improving trade-related logistics. Political stability and policy certainty are also obvious prerequisites for attracting multinational enterprises to the region.

Challenges of Industrial Policy

Now let us turn to industrial policy.¹⁵ Many reports are critical of traditional industrial policy in South Asia, using the term “license-permit raj” for the regime in India, for example. Kaplinsky (1997) defines industrial policy as a series of policy instruments including the pervasive licensing of industrial activity; the reservation of key areas for state-owned enterprises; inward-oriented trade policy; controls over large domestic firms, FDI, and technology transfer; interventions in the labor market designed to protect labor; and policies aimed at promoting small-scale industry.

In 1991, India adopted the so-called New Industrial Policy, which liberalized the economy in favor of market mechanisms by abolishing the licensing system and releasing to the private sector economic activities previously reserved for state-owned enterprises.¹⁶ Since the 1990s, much macrolevel progress has been made in restoring incentive systems for the market by normalizing exchange rates and liberalizing trade policies.¹⁷ With the abolition of the old licensing system, states with favorable locations and good institutional and human resource policies have had stronger growth. Laggard states without latent capabilities, on the other hand, still suffer from stagnation and large populations with a high poverty rate. More attention paid to labor-intensive manufacturing could create many jobs, yet the manufacturing sector is shackled by restrictions, such as distortive protection for small-scale industries and inefficient state-owned enterprises. In particular, labor legislation and exit policies untouched by reform have been detrimental to the growth of domestic manufacturing and foreign investment in the sector.

Besides institutional and infrastructure bottlenecks, a weak domestic supply chain and the lack of technology, management, and research constrain manufacturing in South Asia. Bangladesh successfully transformed its major export industry, shifting from jute to garments by taking advantage of export quotas and preferential access to major markets. But its dependence on imported textiles puts the country at a disadvantage. Foreign capital inflows will bring along the technology and management skills needed to use the country’s abundant supply of low-cost labor if a better business environment is provided. To maximize the spillover effects from the increase in foreign investment, the government should strengthen local industrial linkages by encouraging the emergence of many forward- and backward-linked domestic supporting enterprises.

¹⁵ The focus here is on India. Although the situation may be different in other South Asian countries, the challenges they face are similar to India’s.

¹⁶ Most South Asian countries discarded their inward-looking regimes and introduced trade liberalization and privatization policies from the mid-1970s until the 1990s, as noted in footnote 12.

¹⁷ Bangladesh also gradually adopted outward-oriented development strategies in the 1980s by withdrawing agricultural subsidies and quantitative import restrictions. In 1991, it introduced comprehensive reform by reducing import duties and removing controls on the flow of capital (Sultan 2008).

Government must take a more active role in this area.¹⁸ Even if macrolevel policy reform were to improve the functioning of the market, coordination failures would keep the market from allocating resources efficiently.¹⁹ Many industrial projects require simultaneous, large-scale investments and business services for the investing firms to become profitable. Because of high fixed costs, not all of these requirements can be provided by the private sector. Business services and input in particular are nontradable and require geographic proximity. Cluster development is aimed at overcoming this problem by focusing on the development of a specific sector in a designated area. The narrowest version of cluster development is the development of an industrial park, which accommodates enterprises linked together in a specific sector.

While instituting policy reform to liberalize trade and abolish the tight control of industry is related to the role of government as regulator, developing clusters and supporting enterprises venturing into new businesses require the government to act as promoter or facilitator. For instance, when the government approves the use of land for an industrial park, it functions as regulator. But since industrial parks ultimately increase local industrial capacity and efficiency, and enable enterprises to identify their core competence, the government also serves as promoter.

India's Make in India initiative and Industrial Corridor Program reveal the intention of the country's top leaders to change industrial policy from the "license-permit raj" under the previous planned system to industrial promotion under a more market-friendly system. Also, for other countries like Bangladesh to discover new export industries and strengthen domestic links, their governments cannot simply rely on footloose foreign investors but should nurture the industrial capabilities of indigenous enterprises. However, industrial policy is still biased toward market regulation. Rationalizing rules and streamlining administrative procedures could close the gap between industrial policy as formulated by the top leadership and its implementation by the bureaucracy. To fulfill the intent of the policy makers, the government should select or establish suitable institutions to implement the policies and give them the necessary authority and means to do so effectively and efficiently.

Project implementers should also be imbued with a clear vision of the goals of the projects through information gathering, the drafting of practical proposals based on the information gathered, and mastery of the required technology. Otherwise, the implementing agencies could misunderstand the policy makers' intent, make haphazard progress toward unclear goals, or revert to old rules and procedures. Particularly for industrial cluster development, therefore, the opinions of the local governments should be fully considered. However, the central bureaucracy, mistrustful of local capabilities, does not always grant the necessary authority and budget for project implementation, and without local capacity building, that prejudice is often justified.

The authority sometimes does not go to the right administrative level and lacks the proper framework for its use. Vague rules and goals at the higher administrative levels make it difficult to ask implementers in the field to take responsibility. If the policy governance structure is inadequate, it is better to confine industrial policy to providing a favorable business environment, such as neutral incentives through fiscal or regulatory reform and the management of macroeconomic variables. More is required for strategic industry promotion. Without adequate institutions and implementing rules, industrial promotion results in waste of resources, distortion of incentives, and, worse, corruption.

¹⁸ Although the effectiveness of industrial policy is still a matter of controversy, governments in economies like Japan, the Republic of Korea, and Taipei,China have taken a strong hand in industrial promotion. See Johnson (1982) for Japan, Amsden (1989) for the Republic of Korea, and Wade (1990) for Taipei,China.

¹⁹ According to Rodrik (2004), government's strategic and coordinating role is needed because of coordination failures and market failures resulting from information externalities. He argues that the industrial policy debate should not be about whether but about how the government should be involved.

The next section briefly reviews the industrial policy of the Republic of Korea in the 1960s and 1970s, when the government actively promoted industrial development, and discusses the factors that enabled the country to avoid the pitfalls that prevented other countries from industrializing through government intervention.

III. INDUSTRIAL POLICY OF THE REPUBLIC OF KOREA

Although the Korean government gave priority to export promotion throughout its period of rapid economic growth, its industrial policy stance changed significantly over time. The government maintained an import substitution regime before the 1960s by restricting imports and having an overvalued exchange rate. Unlike India in the 1940s and 1950s, however, the Korean government did not promote heavy and basic industry. Rather, the regime was an inevitable response to the supply shortage after the Korean War.

Export Promotion in the 1960s

The export promotion policy was launched in 1964 with exchange rate reform and the granting of comprehensive export promotion incentives. Exporters received various tax, tariff, and financial incentives, under many promotion schemes. An important incentive measure was the duty-free importation of raw and intermediate input materials, as well as capital equipment, for export production. Another was access to working capital loans, often at preferential interest rates, for export-related activities. The short-term export credit system was streamlined so that exporters could have their loans automatically approved without putting up collateral. Export firms were also granted a reduced corporate income tax rate, wastage allowance, lower rates for electricity and rail transport, and export credit insurance and guarantees, among other incentives.²⁰

In addition, the Korean government established a framework for implementing its export promotion policy. It set up a monthly export promotion meeting chaired by the President and attended by high officials of the government and business leaders.²¹ At each meeting, export market trends were reviewed, the progress of planned policies was monitored, and the achievement of export targets set yearly was checked. The monthly meetings facilitated coordination among ministries, and between the political leadership and the private sector. The government also founded the Korea Trade Promotion Corporation (KOTRA) to provide market information to exporters and help them deal with exporting issues. To reward successful exporters, Export Day was commemorated and export medals were awarded.

These policy efforts and favorable conditions in the world economy catapulted Korean exports from \$87 million in 1963 to \$3,225 million in 1973, or by 36% per year during the period. The share of manufacturing in production and employment also grew. Within a decade, manufacturing's share in production had surpassed agriculture's and its employment share had risen to more than 20% of total employment (Table 3).

²⁰ For a detailed explanation of export incentives, see Hong (1979).

²¹ The meeting was first held in 1965 and the practice lasted more than 20 years.

Table 3: Economic Growth and Structural Change in the Republic of Korea

	Per Capita GDP (current \$)	Unemployment Rate (%)	Exports (\$ million)	Trade (% of GDP)	Manufacturing (% of GDP)	Manufacturing (% of total employment)	Manufacturing (% of exports)	Heavy and Chemical Industry (% of total manufacturing GDP)
1953	67			12.9				15.0
1958	80		16	13.6				
1963	100	8.1	87	21.3	11.0	8.0	45.1	23.0
1968	169	5.0	455	40.6	15.0	12.8	73.9	
1973	401	3.9	3,225	63.6	22.2	13.7	84.0	39.8
1978	1,431	3.2	12,711	64.6	24.0	22.4	88.2	53.2
1983	2,076	4.1	24,445	74.9	26.4	22.5	90.9	57.6
1988	4,435	2.5	60,696	68.8	30.7	27.7	93.1	64.6
1993	8,177	2.9	82,236	54.4	26.8	24.6	93.1	70.5
1998	7,355	7.0	132,313	84.1	27.3	19.7	91.3	77.7
2003	12,717	3.4	193,817	75.8	25.8	19.0	92.7	77.6
2007	20,045	3.0	371,489	94.2	27.3	17.6	89.2	82.7

GDP = gross domestic product

Note: The data on the share of HCl in total manufacturing GDP in the 1960s are from Kim and Roemer (1979).

* Figure for 1953/54.

**Figure for 1961/62.

Sources: GDP and trade data from the Korean National Accounts; employment data from the Korean National Statistical Office Survey on the Economically Active Population; manufacturing share in total exports from the World Bank's World Development Indicators.

This success was possible primarily because the promotion of labor-intensive manufacturing exports was consistent with the country's comparative advantage in the 1960s. The major Korean export industries that decade—labor-intensive manufactured consumer goods such as textiles, plywood, and wigs—put the large numbers of underemployed Koreans to work and sharply reduced unemployment (Table 3). However, the export growth rate would not have been so high if the government had not sent consistent signals in support of export promotion. When the government instituted macrolevel reform by normalizing the exchange rate, it played the role of active promoter by providing a comprehensive and effective incentive system that covered tax, finance, tariff, administrative support, and other available measures. The policy measures were designed to allow the private sector to realize real benefits depending on export performance. Implementation was continuously monitored and the measures were adjusted when needed.²²

In the 1960s, the government was not selective in promoting industries. Incentives were given to all exporting companies on the basis of export performance and without discriminating among the firms. Therefore, the export promotion measures did not distort the market allocation much; in a sense, they amplified the market signals. For example, the automatic granting of export credits based on export performance minimized discretionary decision making by bankers and government officials. Also, tariff exemptions on goods imported for re-export within a specified period involved an immediate rebate after proof of export was presented. As mentioned earlier, the government established a public agent, the Korea Trade Promotion Corporation (KOTRA), to collect and disseminate trade and market information and facilitate trade by giving administrative support to exporters.

²² At the end of each year, the Ministry of Industry reviewed the export performance for the year and lined up the export targets and policies for the next year. These policies and targets were continuously monitored in the monthly meetings.

The Heavy and Chemical Industry Drive

The Government of the Republic of Korea not only promoted exports in the 1960s but also tried to strengthen the country's industrial capacity. During the First Five-Year Economic Development Plan period, 1962–1966, industrial development policy was focused on building basic industries, such as fertilizer plants and oil refineries. The policy was less narrowly defined during this period than in the 1970s. Selective promotion was instead based on the case-by-case approval of borrowing from abroad and the allocation of domestic capital by the government-owned industrial development bank. However, as the high growth of exports of consumer goods rapidly increased the demand for intermediate and capital goods, the government passed a series of laws to institutionalize the promotion of selected industries including machinery (1967), shipbuilding (1967), textiles (1967), electronics (1969), petrochemicals (1970), steel (1970), and nonferrous metal smelting (1971). These laws reflected the government's intention to manage the supply chain in order to relieve procurement difficulties while promoting import substitution of intermediate goods used in export production. To implement the policy, the government introduced measures such as the selective approval of foreign capital inducement, government guarantees for foreign borrowing, entry regulation, and tariffs to protect domestic industries.

The full-blown promotion of heavy and chemical industries (HCI drive) began in 1973 with a 10-year industrial promotion plan and specific targets, including exports of \$10 billion and per capita income of \$1,000 by 1981. By that year, according to the plan, HCI products would compose more than 50% of total exports. The HCI drive was a typical state-led industrial promotion policy with a specific plan and tight government control over the country's resources. The industrial policy regime in the 1970s was therefore more selective and interventional than the 1960s regime. The government selected the target industries and firms on the basis of the strategic plan, restricted entry into targeted sectors, provided generous financial support, guaranteed foreign exchange loans, and closely monitored the progress of projects. The policy did not rely on market signals and it restrained the financial markets, thus distorting the allocation of resources.

The policy was a response to political and economic considerations. There was an urgent need to improve heavy industry, including machinery production, to reinforce national defense capabilities against an anticipated reduction of US troops stationed in the country. Among the economic factors behind the policy was the increase in imports of intermediate production input and equipment for the country's growing exports, which prompted the government to consider establishing backward linkages to save hard currency and make the economy more self-reliant. In addition, an upgraded industry structure was deemed necessary to lessen the competitive pressure from emerging economies with their abundant cheap labor. The government decided to make a concerted push for structural transformation.

Shipbuilding, petrochemicals, steel, machinery, nonferrous metals, and electronics were the six strategic industries selected for the HCI drive with Japan's industrial transformation experience as benchmark.²³ The government also selected private firms in these sectors, which became *chaebols* (family-controlled Korean business conglomerates), to undertake the investment needed for the development of the HCI sector. It provided these firms with bank loans at preferential interest rates, foreign loans with government guarantees, tax incentives including investment tax credits, accelerated depreciation allowance, and tax holidays. Of these incentives, the allocation of domestic and foreign

²³ For details of the HCI campaign, see Kim (1988).

loans was the most important inducement to the private sector to undertake risky investments.²⁴ The National Investment Fund was created to direct financial resources to the strategic sectors by controlling the credit allocation of commercial banks—a government-dictated mobilization of domestic financial resources that encroached on the fundamental principle of private ownership in the market system. The loans were mostly long-term credits with favorable rates, making the real interest rate negative during periods of high inflation.

The projects in the HCI drive were massive, given the size of domestic demand in the Republic of Korea at that time. To secure scale economies, the government sacrificed financial distress and undertook the risk of underutilization. The HCI drive targeted the global market, especially as its concern from the start was competitiveness in the export market. However, following the second oil shock and setbacks in the world economy in the late 1970s, the HCI projects were found to be excessive and unsustainable. Major firms with idle capacity faced severe financial losses. The government called off the HCI drive in 1979 and shifted its policy stance toward economic stabilization, industrial rationalization, and trade liberalization.²⁵

The HCI drive achieved the planned structural transformation, but at a high cost. The HCI share of total manufacturing value added increased from 37.8% in 1973 to 57.6% in 1983 and per capita GDP improved to more than \$1,000 in 1977. As Table 4 shows, the country's commodity export profile changed over time, from labor-intensive light industry to high-value-added industry.

Table 4: Top 10 Export Commodities of the Republic of Korea, 1961–1993 (\$ million)

	1961		1970		1980		1985		1993	
1	Iron ore	5.3	Textiles	341	Textiles	5,014	Textiles	7,004	Electronics	24,233
2	Tungsten	5.1	Plywood	92	Electronics	2,004	Ships	5,040	Textiles	15,877
3	Raw silk	2.7	Wigs	90	Steel	1,854	Electronics	4,286	Steel	6,612
4	Anthracite	2.4	Iron ore	49	Footwear	904	Steel	2,582	Chemicals	4,634
5	Cuttlefish	2.3	Electronics	29	Ships	618	Footwear	1,571	Automobiles	4,493
6	Other fish	1.9	Vegetables	19	Plastic products	531	Fish and shellfish	891	Ships	3,727
7	Graphite	1.7	Footwear	17	Metal products	433	Machinery	845	Machinery	3,055
8	Plywood	1.4	Tobacco	13	Plywood	352	Automobiles	768	Footwear	2,309
9	Cereals	1.4	Steel	13	Ocean fish	352	Plastic products	741	Petroleum products	1,795
10	Skins	1.2	Metal products	12	Electric appliances	324	Electric appliances	609	Plastic products	1,503
	Total	25.3	Total	660.6	Total	24,337	Total	52,875	Total	68,238
	share of above (%)	62	77	80	81	83				

Source: Hong (1994).

²⁴ Unlike the light industries, the heavy and chemical industries required huge amounts of capital and more sophisticated technologies. Gestation periods were also much longer. Therefore, when the policy was launched, some firms were hesitant to invest.

²⁵ The new government that came into power in 1980 was met with an economic crisis: negative economic growth for the first time since the 1960s, external imbalances with huge foreign debts, and macroeconomic instability with high inflation.

Aftermath of the Heavy and Chemical Industry Drive

The new government took several measures to rationalize industry. In 1986, it streamlined the industrial policy by replacing the seven individual industry promotion laws with the Industrial Development Act. The industrial policy regime changed from selective industrial promotion to intervention for industrial rationalization in areas where market failure had occurred. Specialization was encouraged through incentives designed to promote technological advancement. The National Research and Development Project was started to fund public as well as public-private R&D projects. In the 1980s, private R&D expenditure expanded rapidly. Amid growing concern over economic concentration, the Monopoly Regulation and Fair Trade Act was passed in 1980 and the Fair Trade Commission was established in 1981 to regulate economic competition.

Policy measures to protect and support small and medium enterprises (SMEs) were also initiated. SMEs were relatively neglected under the HCI drive but now began to receive more attention from the government.²⁶ The Korea Credit Guarantee Fund was established in 1976 to relieve the financial constraints of SMEs. To modernize the SMEs, the government induced them to specialize in the production of parts and components and to strengthen their links with big enterprises in strategic sectors. In 1978, the government passed the Small and Medium Business (SMB) Promotion Act and established the SME Promotion Fund. The SMB Corporation, founded in 1979, operated and managed the SME Promotion Fund, which has become a major policy vehicle for SME promotion in the Republic of Korea.

Although the HCI drive achieved the goal of transforming the industrial structure and increasing value addition and capital intensity, problems of macroeconomic instability, financial distortion, and economic concentration in large conglomerates surfaced and continued to affect the economy thereafter. Interventionists, such as Amsden (1989), argue, however, that the country could not have attained its economic prowess without government intervention. Unlike the promotion of labor-intensive industries, the promotion of heavy and chemical industries brings about problems of coordination, information, risk management, and financing, which require government to take an active role.

The next section traces the growth of industrial cluster development policy in the Republic of Korea, chiefly the construction of industrial parks in the 1960s and 1970s.

²⁶ The SME sector was considered important from the early stages of the country's economic development. The government passed the Small and Medium Enterprise Cooperatives Act in 1961 and established the Industrial Bank of Korea specifically for SMEs. In view of the rise in exports of SME-dominated light industry, an SME department was created under the Ministry of Commerce and Industry in 1968. Even after the HCI drive had begun, the government introduced a plan to modernize SMEs and set up an agency for SME standardization and quality management. However, the HCI drive with its concentration of financial resources in selected big enterprises resulted in high inflation and the appreciation of the real exchange rate, and a deteriorating business environment for SMEs, in the late 1970s.

IV. INDUSTRIAL CLUSTER DEVELOPMENT EXPERIENCE OF THE REPUBLIC OF KOREA

The clustering phenomenon owes much of its present day importance to Porter (1990), who argued for the formation of industrial clusters to improve competitiveness. The industrial parks that were built in the Republic of Korea, particularly the large industrial complexes that emerged during the HCI drive in the 1970s, were based on the cluster concept, even though the term “cluster” was not explicitly mentioned. The term came into wide use in the Korean policy arena in the late 1990s as the government paid more attention to promoting regional industries. This section presents the industrial cluster development experience of the Republic of Korea together with the evolution of the country’s industrial parks and related policies.²⁷

An industrial park is a planned site that is developed and managed to provide industrial location. Unlike areas where firms naturally locate chiefly to be close to suppliers and markets, industrial parks require deliberate effort: feasibility studies, master planning, construction, and follow-up management. In the Republic of Korea, most industrial parks were developed by the government. The development of industrial parks therefore reflected the government’s policy intent and evolved as the industrial policy regime changed.

As discussed in the previous section, the Republic of Korea significantly reworked its industrial policy over time. Three distinct phases of industrial policy marked the period of high industrialization from the 1960s to the 1980s. In the 1960s, the main policy concern was promoting labor-intensive export industries as well as basic industrial production. In the 1970s, the government aggressively pursued a selective industrial policy. In the 1980s, it moved away from an active industrial policy and toward industrial rationalization and innovation. Korean industrial policy later focused on restoring balanced development by promoting SMEs and regional economic activities. The change in industrial policy was accompanied by a shift in industrial location policy. Table 5 summarizes the evolution of the Republic of Korea’s industrial location policy.

²⁷ For a detailed history of industrial park development in the Republic of Korea, see Park (2010) and Cho (2011).

Table 5: Evolution of Industrial Location Policies in the Republic of Korea

Item	1960s	1970s	1980s	1990s	2000s
Industrial policy regime	Promotion of light-industry exports	Heavy and chemical industry promotion	Industrial rationalization	Industrial restructuring after crisis	Innovation-led regional industrial development
Location policy	Development of industrial park for exporting industries	Development of large-scale industrial complexes	Development of rural and regional industrial parks for balanced national development	Diversification in types of locations and relaxation of regulations on locations	Development of specialized regional clusters and innovative capability of existing parks
Development of industrial parks	Ulsan Industrial Park, Korea Export Industrial Park near Seoul	Large-scale industrial complexes on southeastern coast (Pohang, Ulsan, Changwon, Yeosu, Gumi), free-trade zone (Masan)	Industrial parks in southwestern region, rural industrial parks	High-tech science industrial parks, urban apartment-type plants (“flatted” factories)	Urban high-tech industrial parks, foreign investment zones
Legal basis and institutions	Urban Planning Act, Act on the Development of Export Industrial Parks, Act on Special Cases Concerning the Acquisition of Industrial Sites	Comprehensive Plan on National Territory, Local Industry Development Act, Industrial Park (IP) Development Promotion Act, Industrial Park Development Corporation, Regional IP Management Corporation	Capital Region Readjustment Planning Act, Industrial Site and Development Act,* Act on Industrial Agglomeration Promotion and Factory Establishment*	Act on Special Cases Concerning the Support for Techno Industrial Districts, Korea Industrial Complex Corporation	Act on Planning and Utilization of National Territory, Special Act on Balanced National Development

* Passed in 1990.

Source: Author’s summary.

Development of Export Industrial Parks in the 1960s

The promotion of exports of labor-intensive consumer goods led to the construction of industrial parks for light industry near the Seoul area, where business services and labor were readily available. The Guro Industrial Park, officially named the Korea Export Industrial Park, was originally developed by Korean–Japanese entrepreneurs, but after the private sector–led project stalled, the government took over its development in 1964 and later built other industrial parks in nearby areas and in other major cities in the country.²⁸ The Ulsan Industrial Park was the first designated location for heavy and chemical industries, such as oil refineries, steel, and fertilizer plants.

²⁸ For the development of industrial parks in Guro, Ulsan, Changwon, and Gumi and the history of industrial park development in the Republic of Korea, see Cho (2011).

In the 1960s, the legal basis was set for industrial site development. The Urban Planning Act of 1962 defined the scope of urban planning, and the National Land Planning Act, passed in 1963, provided the legal framework for the use and development of national land. Legislation specific to industrial parks was based on these land-use laws. In the 1960s, the Act on Special Cases Concerning the Acquisition of Industrial Sites was passed to speed up the development of industrial parks. Designated areas no longer had to be approved under the Act on Land Acquisition and the land acquisition process was shortened.²⁹

Rising wages and shortages in intermediate goods in the late 1960s induced the government to promote selected industries, such as machinery, shipbuilding, textiles, electronics, petrochemicals, steel, and nonferrous metals. Legislation promoting each industry was passed, and industrial parks were designated for the selected industries. Pohang was chosen for the steel industry in 1967; Gumi, for the electronics industry, in 1969. The development of the industrial parks for these key industries reached full scale in the 1970s with the HCI drive. As massive investment projects were launched, the government's industrial location policy also changed considerably. Large-scale industrial complexes began to take shape along the southeastern coast of the country under a comprehensive, long-term plan.

Growth-Pole Development Strategy of the 1970s

Industrial location policy during the HCI drive was based on the so-called growth-pole development strategy, which gathered together related production activities in a designated area to maximize development effects through industrial clustering. The comprehensive strategy called for the development of three industrial belts covering all potential industrial areas. The industrial belt along the southeastern coast, connecting Pohang (steel), Ulsan (petrochemicals), Onsan (nonferrous metals), Masan (free-trade zone), Geoje (shipbuilding), and Yeosu (petrochemicals), was developed first, in the 1970s. Gumi, located inland in Gyeongbuk Province, was also developed for the electronics industry.³⁰ Site selection criteria included physical conditions, such as the availability of ports, water supply, and enough space for large-scale production.

The government's first Comprehensive National Territorial Development Plan (1972–1981) served as a road map for land development policies in the 1970s. It dealt mainly with large-scale infrastructure and industrial sites for strategic industries under the HCI drive, particularly transport, energy, and water infrastructure for industrial park development. The Ministry of Construction chose the sites and built the infrastructure, achieved the passage of the Industrial Park Development Promotion Act in 1973, and set up the Industrial Park Development Corporation (renamed the Korea Water Resources Corporation) in 1974 for the construction of industrial complexes. Construction was tightly monitored by the Heavy and Chemical Industry Promotion Committee, in which related ministries, including the Ministry of Construction, were represented.

Despite the adoption of a selective industrial promotion policy in the 1970s, efforts to develop export-oriented local industrial parks for light industry continued. To strengthen administrative, tax, and financial incentives for these parks, the Local Industrial Development Act, which promoted the nationwide dispersion of industrial parks and defined related legal matters, was passed in 1970. Superseding the regulation of local industrial park development by the Urban Planning Act in the 1960s, the new law provided for administrative and financial support from the government under a

²⁹ Committee for the Sixty-Year History of the Korean Economy (2010).

³⁰ The two other industrial belts were those in Incheon–Pyeongtaek, for industries relocated from the congested Seoul area, and in the southwestern area of the country, covering the cities of Gunsan, Janghang, Biyin, Yeosu, and Mokpo.

comprehensive and unified system, relieving the financial burden of local governments after the private sector-led development boom of the 1960s.

Balanced Development Policy in the 1980s

In the 1980s, the Korean government turned away from its massive HCI drive and toward stability and balance, choosing to rationalize industries with idle capacity rather than engage in selective promotion. The second Comprehensive Plan on National Territory (1982–1991) reflected this change in policy regime. To reduce regional disparities resulting from the growth-pole approach of the HCI drive, the government promoted small and medium-sized industrial parks in the provinces and restricted the development of industrial sites in the Seoul area under the Capital Region Readjustment Planning Act of 1983. The Banwol–Siwha and Namdong industrial parks were developed in the coastal area west of Seoul, mostly for small and medium-sized factories, and other industrial parks were set up in relatively underdeveloped regions of Gunjang, Gunsan, and Daebul, in the central and southwestern regions of the country, in the late 1980s. But these parks, developed in haste, stayed mostly unoccupied for a long time. The government tried to increase industrial activity in the rural areas by developing rural industrial parks to give farmers a new source of income.

Reinventing Industrial Clusters in the 1990s and 2000s

In the 1990s, as industrial policy paid more attention to industrial competitiveness and R&D, diverse new needs arose, demanding a fitting response from industrial location policy. Industrial districts began to include business services such as R&D, logistics, and workers' welfare, as well as production. Various types of small and medium industrial sites, such as parks for lease and apartment-type “flatted” factories in urban areas, sprang up. Innovation-oriented industrial parks, such as the Gwangju High-Tech Science Industrial Park, and six local science industrial parks accompanied the rise of the IT industry. The legal framework for industrial location was revised at this time to accommodate the changing industrial structure. Various laws were integrated and regulations abolished to facilitate the development of industrial parks and the construction of factories. The Industrial Sites and Development Act and the Industrial Placement and Factory Construction Act (later renamed the Industrial Cluster Placement and Factory Establishment Act) were passed in 1990. These provide the legal basis for current industrial location policy in the Government of the Republic of Korea.

In the 2000s, the major policy concern was reducing regional and sectoral disparities and strengthening industry innovation. To answer the growing need for functions associated with R&D, marketing, and welfare in industrial sites, and for space for new industries, such as software and biotech, the government introduced various support measures and developed industrial sites tailored to the specific requirements of industries. Small-scale, high-tech industrial parks were built in urban areas so that small businesses could use them at low cost. In addition, various policy efforts were made to revive old industrial parks and improve their competitiveness, foster clusters of innovation, and build networks with research and academic institutions. Policy measures intended to renovate sites and make them more environment friendly were also initiated.

To summarize, the development of planned locations for industrial activities in the Republic of Korea provided not only physical space but also a favorable environment for manufacturing firms. In the 1960s and 1970s, the selection of locations for industrial parks was made solely according to economic efficiency criteria, following the growth-pole approach, rather than political considerations. Large-scale industrial complexes accommodated clusters of factories linked in selected strategic industries. This industrial location policy conforming to a comprehensive, long-term plan for the development of national territory, was systematically pursued. As more technology-intensive industries emerged, the

policy gained in sophistication and allowed the establishment of various types of industrial parks to meet the needs of the new industries.

As a result, the number of manufacturing establishments and employees in industrial parks has increased dramatically, as Table 6 shows. In 2008, more than 15% of all manufacturing establishments and about 45% of total manufacturing employment in the Republic of Korea were located in industrial parks, which accounted for about 60% of the country's total production and 72% of its total exports that year.³¹ Clearly, the establishments in the industrial parks are much more productive than those in individual locations. The large-scale industrial complexes developed in the HCI drive, in particular, have been a force for the country's export growth. The top-five industries in national industrial parks are petrochemicals, steel, machinery, electricity and electronics, and transportation equipment. As of 2013, the Republic of Korea had 41 national industrial complexes, 510 local industrial parks, 11 urban high-tech industrial parks, and 447 rural industrial parks. The industrial parks accommodated 78,228 manufacturing establishments and about 2 million workers, and had an occupancy rate of 94.7%.³²

Table 6: Contribution of Industrial Parks to Manufacturing in the Republic of Korea, 1970–2008

Year	Industrial Parks (A)		Total Manufacturing (B)		Percentage (A/B)	
	No. of Establishments	No. of Employees	No. of Establishments	No. of Employees	Share (%) in Establishments	Share (%) in Employees
1970	703	19,782	24,114	861,041	2.9	2.3
1974	1,119	259,584	22,787	1,369,677	4.6	19.0
1980	2,649	373,282	70,455	3,080,202	12.0	27.2
1987	8,434	1,052,900	44,037	2,528,522	15.0	34.0
1990	8,445	838,573	70,455	3,080,202	12.0	27.2
1995	12,471	918,332	97,284	2,981,813	12.8	30.8
2000	27,287	991,078	98,110	2,652,590	8.7	29.7
2005	36,605	1,216,455	117,205	2,865,549	11.0	35.6
2008	53,803	1,474,410	320,053	3,277,271	16.8	45.0

Source: Cho (2011), from the Korean statistical database and the statistical database on Korean industrial parks.

Section V, which ends this report, summarizes the factors responsible for the success of the Korean industrial cluster development experience and draws lessons for South Asia.

³¹ Park (2010).

³² KICOX (2013).

V. SUCCESS FACTORS AND LESSONS FOR SOUTH ASIA

The qualities of Korean industrial promotion that spurred the growth of indigenous private enterprises became ingrained in the national mind set as an aggressive approach to industrial upgrading. Economic growth under the market-based system turned out successful, fast-growing enterprises. The HCI drive helped these enterprises enter into new lines of business across industries and form groups that eventually became large business conglomerates. The *chaebols*, in a sense, substituted for the state enterprise system in overcoming market deficiencies by internalizing coordination externalities and diversifying risks. Conglomerates that consistently performed as expected by the government were granted various incentives, such as subsidies, credits, and administrative support.

Policy making and implementation in the Republic of Korea, including the selection of sectors and locations for industrial promotion, were not much affected by political interests. This would not have been possible without strong political leadership. Insulated from the influence of interest groups, the technocrats were free to make policy decisions mainly on technical grounds. Top policy makers kept open communication lines with the President, who continuously monitored their activities. They also stayed fairly long in office despite changes in the political situation, making decisions that were consistent with long-term development strategies.

Industrial Policy in the Republic of Korea: Success Factors

The key factors that contributed to the success of industrial policy in the Government of the Republic of Korea fall into two categories: export orientation and policy effectiveness. The country's export orientation exerted sustained competitive pressure on companies and pushed them to continue learning and to adapt. In addition, the Korean government effectively implemented the policy once its direction was set.³³ Export performance provided an objective criterion for government support. Despite the change in policy regime to import substitution in the 1970s, export-oriented development was still the top policy priority and various factors worked to soften the negative effects of distortive intervention.³⁴

Outward-Oriented Industrial Promotion

The large production quantities in the heavy and chemical industries did not allow the Republic of Korea with its small domestic market to exploit economies of scale. The HCI drive scaled up the project size and explicitly provided for an increase in the export share of promoted industries. Whether intentionally or not, this export orientation helped reduce the protectionism innate in import substitution policy. It also helped the country restore its external balance after the economic crises of 1980 and 1997. The depreciation of the Korean won boosted the economy and produced the hard currency needed to gain the confidence of foreign investors.

³³ For an overview of the role of the state, see Perkins (1997). For the country's industrial and trade policy, see Ahn and Kim (1997).

³⁴ The arguments in this section on factors mitigating the negative effects of intervention in industry are based on Kim, Huang, and Trang (2011).

Adequate Selection of Industries for Promotion

The selection of promoted sectors was consistent with the evolving comparative advantage of the Government of the Republic of Korea. Among the six strategic industries, the relatively labor-intensive shipbuilding and electronics sectors were areas where the country could readily compete, given its adequate supply of well-trained workers. Steel, petrochemicals, and nonferrous metals, on the other hand, were industries with rising domestic demand due to the rapid growth in exports. Finally, the machinery industry, where domestic demand was also mounting, was especially important because of its relationship with the defense industry. Policy makers considered the industry critical to the improvement of the country's engineering capability. The HCI drive was pursued with careful consideration of demand and industry linkages. The growth of labor-intensive industries induced an increase in intermediate input and equipment imports, which became targets for promotion. Other countries that rushed to promote upstream industries without considering industrial linkages and market conditions were less successful.

Private Enterprise–Oriented Promotion

Unlike other countries that relied solely on state-owned enterprises to engage in industrial promotion, the Government of the Republic of Korea empowered private enterprises. The government took the first step, and the private sector managed the businesses.³⁵ The market system gave private enterprises strong motivation—the prospect of financial gain—to perform well. Government actively invested in infrastructure and big projects, designed major industrial policies, and induced the private sector to follow the policy directions.

Consistent Policy Signals with Comprehensive and Effective Incentives

The Korean government maintained consistency in its policy signals. Its measures were not fragmented or nominal, but comprehensive and effective.³⁶ The system of incentives covered all available measures, such as tax, finance, tariff, and administrative support. For the HCI drive, the major tool of government was the allocation of financial resources. When there was chronic excess demand for financial resources, the accessibility of bank loans itself created huge rents. Interest rates were kept lower than curb market rates or market clearing rates.

The Korean government was both an active promoter of industrial development and a regulator, allocating scarce resources on the basis of its plan for promoting strategic industries. It was aware that policy implementation was as important as policy design and that it had to adjust policy measures as conditions changed. Poor management and corruption could distort policy intentions and lead to waste and rent-seeking behavior. In the 1970s, particularly with its resources being allocated on the basis of export performance rather than transparent criteria, the government had more room to fail. It responded with concrete policy measures and specific expenditure targets, and with proper management and constant monitoring of implementation.

³⁵ This is not saying that all projects were undertaken by the private sector. The Pohang Iron and Steel Company (POSCO) was a state-owned enterprise until recently.

³⁶ The Government of the Republic of Korea used both sticks and carrots. It threatened to withdraw bank loans if firms did not meet the expectations of policy makers. The government also exerted competitive pressure by allowing rivalry among leading companies.

Effective Policy Implementation

Through its institutional arrangements, the Government of the Republic of Korea eased communication and coordination in policy design and implementation. It created the Economic Planning Board (EPB) in 1961, and appointed its head as deputy prime minister with authority over other ministers. The EPB centralized policy coordination: it prepared the budget, collected statistics, and drafted and implemented development plans. Other ministries were involved in daily operations; the EPB, on the other hand, had a long-term economic focus and coordinated policy measures to make them consistent with long-term strategies. The second 5-year economic plan (1967–1971) explicitly stated that the EPB was responsible for implementing, managing, and coordinating the plan.

The EPB functioned as the seat of government control. It dictated the allocation of the development budget and, by designing the overall budget plan, with which the annual budget and the foreign exchange and investment allocation plans had to comply, it determined the overall allocation of the country's resources. Firms seeking foreign loans for their projects had to apply for approval from the EPB. The Ministry of Commerce, Industry advised the EPB on the technical content of the proposed projects, while the Ministry of Finance reviewed the financial status of the borrowing firms. Through the Deliberation Council for Foreign Capital Mobilization, the EPB determined the appropriate amount of foreign loans for each application, in line with policy priorities.³⁷

The 5-year economic development plan itself was less crucial; it served more as a means of communication among relevant entities. During plan preparation, information was shared among ministries and the private sector. Ministries learned about one another's concerns and issues and the country's long-term goals. The private sector, in turn, familiarized itself with the government's policy orientation.³⁸

Under the government's formal system of monitoring and evaluation, each ministry or agency submitted an annual management plan to the Office of Planning Coordination (OPC) in the Prime Minister's Office. Each ministry monitored and evaluated all projects and programs specified in its management plan and reported each quarter to the OPC, which submitted an overall quarterly report to the President. The OPC was replaced in 1981 by the Bureau of Evaluation and Analysis under the EPB.³⁹

Strong Political Leadership

Although the EPB was in charge of the overall economic development plan, the Ministry of Commerce and Industry gained an expanded role with the passage of industrial promotion legislation in the late 1960s. The ministry introduced entry restrictions, protective tariffs, foreign investment screening based on technical content, and other measures. When the HCI drive was launched in 1973, a task force, the Heavy and Chemical Industry Promotion Committee, was created under the direct supervision of the President. The HCI drive was conceived as a long-term investment plan with concrete and detailed investment projects, such as the construction of large industrial complexes. In contrast to the 5-year plan controlled by economic specialists in the EPB, the HCI drive was managed by engineering and construction bureaucrats with technical knowledge

³⁷ Unlike the PRC, which relied on FDI for industrial development, the Republic of Korea used foreign financing, such as foreign bank loans. It accumulated a large amount of foreign debt in the late 1970s and encountered a debt problem. However, the export boom in the last half of the 1980s relieved the country of its foreign debt problem.

³⁸ The role of planning in communication is pointed out by SaKong (1993).

³⁹ For a discussion of indicative planning in the Republic of Korea, see Kuznets (1990).

of industrial promotion.⁴⁰ The task force relayed the needs of industry to the President. But EPB concerns about macroeconomic instability and economic imbalance due to the massive size of the HCI drive led to the dissolution of the task force in 1980.

Industrial Cluster Development in the Republic of Korea: Success Factors

The development of industrial parks in the Government of the Republic of Korea provided industry with competitive production locations at low cost.⁴¹ The Korean government not only made physical space available but also continuously tried to develop industrial clusters where the resident firms were supported by business services linked together in a supply chain. The rise of major large-scale industrial complexes was accompanied by complementary efforts to strengthen research and human resource capabilities in the various regions. The government encouraged universities and technical schools located near industrial parks to serve as specialized R&D, education, and training institutes for the selected industries.

Substantial Support from the Government

The development of large industrial complexes in the 1970s was a national project that had the full support of the government. The Ministry of Construction prepared the master plan for the construction of the complexes, while the Ministry of Commerce and Industry selected the firms that would reside in the parks and set guidelines for park management. EPB and the Ministry of Finance drew up the financing plan, and the Ministry of Science and Technology prepared a human resource development plan for the supply of technical manpower to the resident firms. The government established the Korea Industrial Complex Corporation (KICOX), a state-owned corporation, to carry out the construction work. KICOX was authorized to expropriate land, make loans, and grant tax exemptions.

The construction of industrial parks was the major undertaking under the HCI drive. The nine industrial parks built by the government in 1973–1979 accounted for 36% of the total government spending on the HCI drive. The government planned to invest up to \$96 billion in 1973–1981—an unprecedentedly large amount in relation to the country's GDP of \$138 billion in 1973—to promote the six strategic industries. The National Investment Fund was created to mobilize domestic capital. The fund mobilized about 12% of the country's money (M3) growth in 1974–1981 and allocated about 55% of its resources to the construction of heavy and chemical industry production bases and the domestic purchase of machinery. Firms investing in the heavy and chemical industries were given substantial fiscal incentives, including tax exemptions (100% for the first 3 years and 50% for the next 3 years), investment tax credits (8%–9%), and accelerated depreciation (100%). The effective marginal corporate tax rates in 1975–1981 were around 15%–20% for heavy and chemical industries, and around 48%–52% for other industries.⁴²

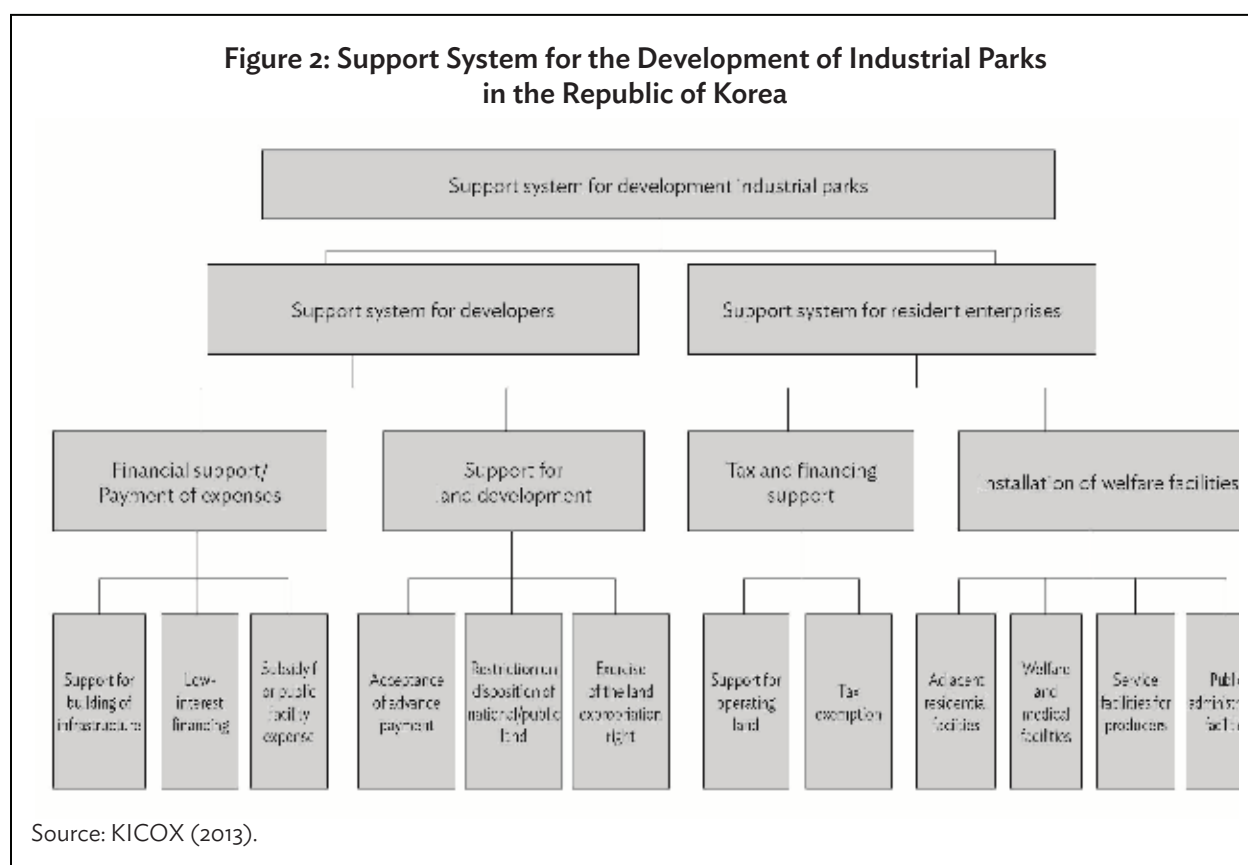
⁴⁰ This feature of the HCI drive's governance structure was pointed out by Park (2011).

⁴¹ The government bore the cost of basic infrastructure.

⁴² Kim (2001).

Effective Incentives for Industrial Park Development

The Government of the Republic of Korea introduced various incentives to make it possible for private developers and local governments to put up industrial sites, and firms to move into the parks. It eased restrictions on land acquisition and reduced red tape connected with the approval of construction and matters related to urban planning and the environment. It also paid for part of the infrastructure in the industrial parks, such as roads, water supply lines, and sewerage, and subsidized the purchase of land for special purposes, such as urban apartment-type factories, rural industrial sites, and industrial parks for lease. Developers received tax incentives, such as exemption from land acquisition tax, registration tax, and property tax. Acquisition and registration tax exemption and partial relief from property tax were extended as well to firms to induce them to locate in the industrial parks. In addition, preferential loan arrangements were made available at the time of site purchase. Figure 2 shows the current support system for industrial park development in the Republic of Korea.

*Adequate Legal Framework of Support*

The country's industrial cluster development laws (Table 7) give details of the government incentives and regulations. Currently, the Framework Act on National Territory (2002), with its long-term vision of national land utilization, is the highest-level and basic framework of land use. The Act on Planning and Use of National Territory (2003), based on the framework law, provides the regulatory framework

for the location of industry and facilities, land use, and environmental conservation.⁴³ The Capital Region Readjustment Planning Act was passed in 1983 to deconcentrate industries in Seoul by regulating the construction of production facilities in the metropolitan area, including Gyeonggi Province, which surrounds Seoul.

Table 7: Legal Foundation of Industrial Cluster Development and Management in the Republic of Korea

Item	Legal Foundation	Implementation
Framework	Framework Act on National Territory	
Land-use regulation	Act on Planning and Use of National Territory	Urban planning, Comprehensive National Territorial Plans
	Capital Region Readjustment Planning Act	Capital region readjustment planning
Industrial park development and management	Industrial Sites and Development Act	Industrial site supply plans
	Act on Industrial Agglomeration Promotion and Factory Establishment	Framework Plan for Industrial Agglomeration Promotion
Special-purpose planned locations	Special Act on Designation and Management of Free Economic Zones	Free economic zones
	Free Trade Zone Act	Free-trade zones
	Foreign Trade Promotion Act	Foreign investment zones
	Special Act on Enterprise City Development	Enterprise cities
	SME Promotion Act	SME collaboration parks
	Framework Act on Science and Technology	Science and technology parks
	Act on Special Cases Concerning Support for Industrial Technology Parks	Industrial technology parks
	Software Industry Promotion Act	Software promotion parks
	Cultural Industry Promotion Act (1999)	Cultural industry parks
High-tech medical complexes	Act on Development and Management of Physical Distribution Facilities	Distribution parks
	High-Tech Medical Complex Act	High-tech medical complexes

SME = small and medium enterprise.

Source: KICOX (2013).

Two laws guide industrial park development and management in the Republic of Korea. The Industrial Sites and Development Act (1990) concerns the designation and development of national and local industrial parks, and the Act on Industrial Agglomeration Promotion and Factory Establishment (1990) provides the legal basis for the management of developed industrial parks and the promotion of industrial clusters.⁴⁴ The country gradually streamlined its legal framework for industrial cluster development by integrating and simplifying the individual laws.

⁴³ The Act on Planning and Use of National Territory integrated the two basic laws on land use—the Urban Planning Act (1962) and the National Land Use and Management Act (1973)—which guided industrial cluster development in the Republic of Korea before 2003.

⁴⁴ KICOX (2013).

Customized Support System

Special-purpose industrial sites, such as free-trade zones, were also introduced, through the passage of the Free Export Zone Act (since renamed the Free Trade Zone Act) in 1970. The first free export zone was developed in Masan. It attracted foreign investment in labor-intensive export production industries, such as electronics, and had a major spillover effect on local industries through industry linkages. New types of industrial parks, such as urban high-tech parks and apartment-type “flatted” factories, were developed in response to changing demand as the country progressed into high-tech industries. Industrial parks for SME agglomeration were built to promote the clustering of SMEs. The country also developed science research parks and special districts for R&D to promote industry innovation. For each special-purpose industrial site, individual legislation specifying customized regulations and incentives designed to achieve the purpose of the cluster was passed (Table 7). For instance, the Ministry of Science and Technology was given jurisdiction over science and technology parks.

Long-Term Plan for Industrial Cluster Development

A long-term plan, with a comprehensive and detailed vision closely aligned with the country’s long-term economic development policy for national strategic industries, was drawn up for industrial cluster development in the Republic of Korea. Large-scale heavy and chemical industrial parks built in the 1970s are still expanding in accordance with the long-term plan. For example, the construction of Gumi Industrial Park began in 1968 specifically for the electronics industry under the Electronics Industry Promotion Act (1969). With the launch of the HCI drive in the 1970s, the development of industrial parks received vigorous support from the government. As soon as Park 1, the first site of Gumi Industrial Park was completed, the government planned its expansion and the development of residential areas. Park 2 was designated in the mid-1970s for industries that were relatively new to the Republic of Korea, such as semiconductors, personal computers, and precision instruments. Park 3 was completed in 1995, and Park 4 is under construction and is expected to be completed in 2015. Other industrial complexes similarly went through long-term development. The Pohang Steel Industrial Park project was planned for 1975–2020; the Changwon Industrial Complex project, for 1974–2015.⁴⁵ The Changwon complex includes not only industrial sites but also large-scale urban area development, and thus reserved sizable land for expansion from the start. Once the industrial parks were established and running successfully, specialized firms linked with the resident companies were invited to locate in the park.

For the development of other, relatively smaller industrial parks, the Industrial Location Policy Deliberation Committee of the Ministry of Land, Infrastructure and Transport prepares 10-year supply plans for the industrial sites. The committee set up a local industry location subcommittee to hear the views of heads of local government. Special-purpose industrial clusters comply with individual laws under the jurisdiction of the ministries concerned. The Ministry of Trade, Industry and Energy prepares 5-year plans for the promotion of industrial clusters, which include the promising sectors selected for regional industrial clusters, supply plans for the industrial sites, human resource recruitment and development programs, and plans for related social overhead capitals. The plans also define support for the restructuring of clusters with sunset industries.

⁴⁵ Committee for the Sixty-Year History of the Korean Economy (2010).

Specialized Agencies for Industrial Cluster Development

Besides establishing laws and systems, the government set up specialized public agencies with the sole task of developing and managing industrial parks, and gave them the authority as well as the responsibility to undertake industrial cluster development. The Ministry of Land, Infrastructure and Transport designates planned locations, including industrial parks, and develops the land; the Ministry of Trade, Industry and Energy develops and manages industrial clusters.⁴⁶ The Korea Land and Housing Corporation (established as the Land Fund in 1975) under the Ministry of Land, Infrastructure and Transport administers the acquisition, use, and supply of land for public purposes, and KICOX under the Ministry of Trade, Industry and Energy is in charge of developing and managing national industrial parks. The establishment of affiliated public agencies with specific missions improved the effectiveness of policy implementation particularly as these agencies accumulated the necessary expertise and know-how to carry out the policy.

The first public agency for industrial park development and management was the Korea Export Industrial Corporation. It was set up in 1964 to take over the development of the Guro Industrial Park. The agency oversaw that industrial park project and successfully attracted firms spread over the Seoul area to the park by providing various export-related services. As demand for production sites grew, it also managed the expansion of the industrial park and the development of other parks in Bupyeong and Juan, near Seoul. The major export commodities in the parks were textiles and clothing. Recently, the Guro Industrial Park has been transformed into a park for high-tech companies in the digital technology industry under a new name, Seoul Digital Industrial Park.

At the start of industrial park development, the government's attention was focused on building infrastructure and developing industrial sites. With the completion of the construction work, the government concerned itself more with stabilizing and managing the operation of the parks. While efficient management of the industrial parks is critical to their success, monitoring the use of the sites by the resident firms to make sure that it accords with the conditions of residence is no less important.

To institute orderly systems for managing the industrial clusters, the Government of the Republic of Korea created specialized industrial park management agencies at the start of development. The Korea Export Industrial Corporation administered the construction and management of the Korean Export Industrial Park. It also managed the industrial parks in Guro, Bupyeong, Juan, and Namdong in Seoul, and the Gyeonggi area. The Jungbu Industrial Park Management Corporation (later the Gumi Industrial Park Management Corporation) was formed in 1971 to manage the sale of sites and stabilize operations at the park. The Southeast Regional Industrial Park Management Corporation first managed the operation of Changwon Industrial Park and later became responsible for managing other industrial parks on the southeastern coast, such as Ulsan and Onsan. More management agencies were set up as industrial park development spread toward less developed regions. The West Regional Industrial Park Management Corporation was established in 1977 to manage the Banwol, Sihwa, and Asan industrial parks, and the Southwest Regional Industrial Park Management Corporation in 1990, for the industrial parks in Yeosu, Gwangju, Gunsan, and Gunjang. These various management corporations were merged into KICOX in 1997.⁴⁷

⁴⁶ The Ministry of Land, Infrastructure and Transport was previously the Ministry of Construction and Transportation. The Ministry of Trade, Industry and Energy has been variously known as the Ministry of Commerce and Industry, the Ministry of Knowledge Economy, and the Ministry of Industry and Trade.

⁴⁷ Information about the history of the development of the Republic of Korea's industrial park management system was obtained from the KICOX website (<http://www.kicox.or.kr/home/eng/history/history.jsp>).

The centralization was intended to streamline national industrial park management and upgrading, consistent with national policies. KICOX consolidated the five regional industrial management corporations and took over the operations of foreign investment zones and special-purpose industrial clusters, such as the Osong Bio-Health Science Park. It also undertook to manage the development of regional industrial parks and provide consulting services to agencies with a similar mission. A new mission accompanying the change in industrial location policy focus from quantitative to qualitative improvement is upgrading the industrial parks to strengthen the innovative capability of firms in the parks and make the parks more ecofriendly. KICOX likewise provides various forms of support to firms to improve the quality of work life and enable the firms to retain the services of young skilled workers.

Lessons for South Asia

For South Asia to maintain a high growth rate and create jobs for underused labor, the manufacturing sector should grow much faster and increase its share in the economy. Despite the view in some quarters that India should promote high-tech and IT industries by sidestepping industrialization based on traditional manufacturing promotion, the country does not have to give up manufacturing to create enough jobs for its large population and meet growing domestic demand. States with abundant cheap labor in particular should promote strategically selected industries, which could have considerable spillover effects on industrial dynamism in their regions. In other countries, such as Bangladesh, expanding and upgrading labor-intensive export industries is crucial. This requires a well-conceived policy framework to remove the antimanufacturing economic bias and attract foreign and local enterprises to strategically important industries.

Getting the Fundamentals Right

Specific manufacturing promotion policies are impossible to prescribe for the South Asian countries in view of their different economic conditions. The general policy prescriptions found in many studies apply to all the countries in the region.⁴⁸ The government should improve the environment for doing business and resolve the infrastructure deficit. It should reform administrative procedures, shorten or do away with regulatory delays, and increase transparency. Bank credit should be made more accessible. The skill shortage should be overcome in collaboration with the business sector. Particularly for manufacturing, a labor market made more flexible through reform is very important. So is the ability to acquire land at lower cost. To make more land available, the government should find a way to release land owned by government or public sector entities.⁴⁹

Along with these macrolevel improvements in the business environment, the government must take macro and microlevel actions to stimulate investments that will increase the capability and competitiveness of domestic manufacturing firms. Macrolevel reforms that normalize the generally overvalued exchange rate will facilitate foreign investment and attract foreign enterprises to the country if its comparative advantages, such as low wages and fiscal incentives, outweigh its disadvantages, such as high cost of doing business, poor infrastructure, and weak local supply chain.

⁴⁸ See Kaplinsky (1999), Kochhar et al. (2006), and Singh (2008), for example.

⁴⁹ In India, the Land Acquisition, Rehabilitation, and Resettlement Act (2013) sharply raised rural land prices and mandated a time-consuming acquisition process. This protracted process will hinder the acquisition of land for industrial sites and accelerate deindustrialization. See Kumar (2014).

Strengthening the Role of Government as Promoter

The garment manufacturing industry in Bangladesh succeeded because of cheap labor, fiscal incentives, such as tax holidays and tax rebates, and infrastructure benefits for export-oriented enterprises in the export processing zones (EPZs). However, Bangladesh should strive to diversify its exports through the backward-linked domestic production of intermediate materials, such as fabrics for the garment industry, and through new industries. Developing backward-linked industries will help Bangladesh increase value added in the garment industry, make its garment exports more competitive by reducing export lead time, and improve its balance of trade. The government must act as promoter, possibly by subsidizing the self-discovery efforts of enterprises and designing a mechanism for lowering risk.⁵⁰

Developing Industrial Clusters as Focal Points of Industrial Promotion

To play the role of promoter, the government should gather industrial and market information, design policy measures, and implement policy measures. Cluster development—developing new clusters or nudging existing clusters with potential into new industries—may be an effective strategy. The EPZ policy, which involves giving incentives to exporters in a designated area, is based on cluster development. Bangladesh at present has a streamlined EPZ policy framework with an adequate governance structure.⁵¹ But it has no systematic strategy for promoting planned clusters.⁵² Firms in the EPZs receive relatively more efficient and better-documented assistance than firms outside the zones, where the country's cluster policy focus is on small and micro enterprises and cottage industries and where industrial sites suffer from poor infrastructure and business services.⁵³ As the garment export industry matures, Bangladesh should pay more policy attention to the growth of backward-linked industries, by setting strategic goals for industrial cluster development.

In India, increasing government interest in industrial promotion is likely to lead to more reforms to boost manufacturing. The rigid labor laws in particular need a major overhaul. Legal reforms should be introduced to facilitate land purchase and contract enforcement. The government should invest more in social overhead capitals to provide industrial sites with a reliable supply of electricity and water. It should direct its efforts toward increasing competition in the domestic market and providing more favorable conditions for doing business in the country. From this perspective, industrial park development targeted at both the foreign and the domestic market may be an effective strategy for promoting foreign-invested manufacturing enterprises, given the bottlenecks in the acquisition of useful land.

⁵⁰ Rodrik (2004).

⁵¹ The Prime Minister's Office administers the EPZs and the EPZ Authority allocates plots on its own land. In addition, the EPZs have easier access to public industrial assistance related to infrastructure, technical, and administrative issues. (From the introduction to the Industrial Policy for 2005–2015, prepared by the Ministry of Industry, http://www.bdtradeinfo.com/business-investment/industrial_policy.php)

⁵² The SME Foundation under the Ministry of Industry supports the SMEs in Bangladesh. It groups about 50 firms within a 5-kilometer radius into a cluster and supports their development. However, the project budget and human resource allocation is very small.

⁵³ According to interviews with officials and members of the Federation of Bangladesh Chambers of Commerce and Industry in Dhaka.

Designing and Implementing Industrial Promotion Policy

This report does not suggest that the experience of the Republic of Korea in industrial promotion and industrial cluster development can or should be directly replicated in the South Asian countries. Questions about the adequacy of the HCI drive and whether the Republic of Korea could have achieved industrial transformation without it are still unanswered. Moreover, the policy requirements are different because the situations are different. The Korean experience nonetheless provides valuable lessons in policy making and implementation. In particular, it shows that significant industrial upgrading cannot be achieved through macrolevel policy reform and tax incentives alone. The government must be an active promoter and must allocate a sufficient budget to industrial promotion on the basis of strategic goals. The following guiding principles for designing and implementing industrial policy in South Asia are drawn from the Korean success story.

First, upgrade the industrial capacity of local private enterprises. The main target of industrial policy should be the creation and growth of private enterprises, foreign or domestic. To realize the motto “Make in India,” priority should be given to export-oriented manufacturing. Bangladesh, on the other hand, should give more emphasis to the backward-linked industries of its current export industries. Considering the rise in global production sharing, industrial policy should promote the participation and upgrading of local enterprises in the global supply chain.

Second, strengthen the administrative capacity of policy makers. The role of government as promoter requires clear goals with detailed policy measures, adequate budgets, and effective monitoring. The government must have a full grasp of market information gathered in the field. In the Republic of Korea, the monthly export promotion meetings enabled continuous information sharing and made policy more responsive to changing conditions in the market. Industrial policy should serve to amplify market signals through market-friendly measures. To promote local backward-linked industries in Bangladesh, for example, the government should study the domestic supply chain and identify bottlenecks in local procurement through a survey of large firms in the EPZs. The government should also pinpoint the barriers to the entry of local firms into these industries despite rising demand. In India, where state governments should be allowed to customize industrial policy to the specific conditions in each state, more attention should be paid to enhancing the ability of state-level policy makers to plan and implement the policy.

Third, distinguish between industrial policy and social policy. The emergence of sizable local firms in promoted industries is critical to industry development and upgrading. These firms are the leading innovators and coordinators of local production. Microenterprises, while important in increasing the income of rural households and reducing poverty, have limited ability to upgrade industrial capacity by entering on their own into new industries that call for new production processes, new technologies, and workers with new skills. SMEs in the Republic of Korea, particularly those in manufacturing, gained in industrial capacity as their linkages with large firms strengthened through subcontracting. The government as a promoter should move strategically, keeping its long-term goals in mind, and give preferential treatment to enterprises or industries with strategic purpose. Confusing social policy with industrial policy and supporting many clusters of microenterprises scattered all over the country may dissipate strategic focus and thus diminish the effectiveness of industrial policy.⁵⁴ Even in the Republic

⁵⁴ Again, it is important to reform business and labor regulations to facilitate the creation and growth of small businesses and credit disbursements to those businesses, as in Sri Lanka and the Maldives. However, activating SMEs alone will not link them to global production networks. Larger local enterprises with technological and organizational capacity are needed to link domestic production networks to global value chains.

of Korea, where SMEs are relative larger, the effectiveness of SME industrial policy has been criticized for the unfocused distribution of policy resources.

Fourth, align planning with budgeting. Industrial policy should have more concrete content. It should comprise specific action plans with adequate budget support and detailed information about the conditions under which the policy measures should be applied. The policy framework must be effective, consistent, and realizable. Such a policy framework can be established under an effective governance system, where the agents involved in industrial promotion, such as the ministries in charge and private enterprises, can work together and communicate without difficulty. Coherence between planning (or policy making) and budget support is especially important. Without budget support, the policy becomes just a wish list of the government. In India, which consists of many states with different levels of industrial development, the central government should delegate the design and implementation of industrial policy to the local governments for concrete policy action and effective implementation. However, the local governments do not have much leeway to use their budgets for industrial promotion. Those in less developed states in particular must look to the central government for budget assistance to stimulate the growth of local industries. Giving more authority to the local governments in industrial policy making and more voice in the preparation of the industrial policy budget would address this possible incoherence between the central and local governments.

Finally, monitor and evaluate policy implementation. More authority requires more effective monitoring and evaluation. Despite the intensive intervention of the Government of the Republic of Korea in resource allocation for strategic purposes, there was not as much diversion of policy resources to totally unproductive activities as in other countries. This was because of the continuous monitoring of the policy process by top-level bureaucrats, who were insulated from political interests by competitive recruitment and job security guarantees under a seniority system.

The Korean National Audit System, the Economic Planning Board, the Office of the President, and even the Central Intelligence Agency also monitored the policy process constantly. Given the high priority placed by the authoritarian government on economic development, this was not surprising. Support for the selected enterprises came with specific conditions and targets. Performance was continuously monitored and reported to the top policy makers and political leaders. Top leaders held periodic field visits and discussed administrative red tape on the spot. In addition, the threat to withdraw support, such as rollover of bank loans, put continuous pressure on firms competing with other supported firms in similar industries. In most South Asian countries, the governments have their own monitoring and evaluation systems. Bangladesh, for instance, set up a management information system (MIS) in the Ministry of Industries for the proper monitoring and administration of industrial policy.⁵⁵ In India, the Department of Industrial Policy and Promotion monitors industrial policy. Current monitoring systems must be evaluated and their operations strengthened. Multilevel monitoring, including the monitoring of the government agents in charge and the evaluation of their performance, could be considered.

Lessons from Industrial Cluster Development in the Republic of Korea

Korean industrial location policy follows these same guiding principles. The Government of the Republic of Korea approached the development of industrial parks from the standpoint of the competitiveness of the sites in providing a favorable productive environment to private firms that were resident in the parks. Therefore, when preparing the sites, the government drew up plans for making

⁵⁵ See the Industrial Policy of Bangladesh at http://www.bdtradeinfo.com/business-investment/industrial_policy.php

the needed infrastructure, business services, supply of skilled labor, and technological assistance available to the firms in the parks. Various related ministries, such as the ministries of industry, transport, education and training, and science and technology, collaborated on the development of the parks. Policy coordination took place and public agencies were established to implement the policies from the start of construction to its end, as well as to manage the parks. Moreover, government support for industrial cluster development was not given on a case-by-case basis. Instead, the process and incentive measures were institutionalized with clear procedures and the corresponding legal basis. Developers and firms knew what they could expect to earn from the investments they decided to make. Institutionalization of support was also important in improving transparency and sending clear industrial policy signals.

The lessons from the Korean experience with industrial cluster development policy can be summarized as follows.

First, provide adequate incentives consistent with policy objectives. To promote industries through industrial park development, the government should provide suitable incentives, sometimes substantial ones, for industrial park development and management. Preferential treatment in the acquisition of land, the supply of infrastructure, and the provision of business and administrative services is required. To make the industrial parks competitive, their development and management should be based on the cluster approach. The government should subsidize the developers and resident firms to attract firms in the selected industries to locate in the parks. South Asian governments that think of themselves as regulators may regard giving land-use permits as preferential treatment and believe that industrial cluster development policy stops there. The Bangladesh government's offer of unused public lands, where the logistics and infrastructure are generally less attractive, was disappointing to local enterprises.⁵⁶ Policy makers must think like the owners of the enterprises at the proposed sites.

Second, engage in industrial cluster development from a long-term perspective. Since the development of competitive industrial parks incurs considerable costs and public spending, it should be a strategic undertaking under a long-term and comprehensive national land-use plan. In the Republic of Korea, the plan for developing industrial complexes for industrial promotion spanned more than 2 decades. India's Industrial Corridor Program involves long-term economic development based on the spatial distribution of industries in the designated regions. Although the program includes detailed planning of projects connecting industrial hub cities, it should be reevaluated in relation to overall territorial development plans and considering other sectors and their industrial linkages. The priorities of subprograms and issues such as timing and public and private sector expenses must be assessed. How the projects are to be financed should likewise be planned.

Third, institutionalize incentives. Effective and systematic incentives for implementing industrial cluster development policy should be institutionalized. In the Republic of Korea, the incentives and administrative procedures in support of the establishment and operation of industrial parks for the manufacturing industries are detailed in two representative laws—one for development and another for the management of industrial clusters. The country has been modifying the legal basis of government support for industrial site development and cluster management to suit changing conditions. Special-purpose industrial sites with differences in treatment and incentives are being developed. To attract the private sector to the development of industrial parks, legislated procedures and incentives are important. They reduce the discretion of bureaucrats and give investors confidence in policy. In India, where industrial park development depends on state-level action, the legal basis for

⁵⁶ Based on the author's interviews with local businessmen in Dhaka.

such state-level development should be established. The laws should conform to the policy principles of the central government and their legal basis.

Finally, create a specialized public agency to implement the policy. Creating an agency specifically to develop and manage industrial parks or clusters may facilitate the effective and efficient implementation of the policy. The Republic of Korea set up a public entity with those specialized tasks. KICOX helps ensure that, after their construction, the industrial parks operate in accordance with the industrial policy. It also provides continuous business and administrative services to the firms in the parks, keeping the planned sites attractive to investors and fully occupied. Specialized agencies can put all their efforts into their designated tasks because they have specific goals against which their performance is evaluated. Government bureaucrats, on the other hand, with their various industrial policy concerns, including skill development, R&D, and FDI, and frequently changing positions within the government, cannot take charge of industrial cluster development, which usually takes a long period of time. In India, the Gujarat state government established the Gujarat Industrial Development Corporation (GIDC) to deal with land acquisition and allotment.⁵⁷ However, GIDC's functions should not stop at land acquisition but should also include all other matters related to the development of industrial production sites, such as infrastructure provision, financing, and management after construction. Such specialized agencies should be made responsible for the implementation of industrial park development from start to finish.

⁵⁷ See the Gujarat Industrial Policy 2015.

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Lessons for South Asia from the Industrial Cluster Development Experience of the Republic of Korea

Industrial development, particularly the growth of manufacturing activity, is important for economic growth and poverty reduction in South Asia. This report presents the evolution of industrial policy along with the promotion of industrial cluster development in the Republic of Korea and draws lessons learned for South Asia. These lessons would be useful to implementation of development strategies, such as the economic corridor program in India which tries to maximize the integration between economic hubs where large amount of resources are concentrated.

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