

**2011 Modularization of Korea's Development Experience:  
Industrial Park Development Strategy  
and Management Practices**

**2012**



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and Management Practices

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# Preface

The study of Korea's economic and social transformation offers a unique opportunity to better understand the factors that drive development. Within one generation, Korea had transformed itself from a poor agrarian society to a modern industrial nation, a feat never seen before. What makes Korea's experience so unique is that its rapid economic development was relatively broad-based, meaning that the fruits of Korea's rapid growth were shared by many. The challenge of course is unlocking the secrets behind Korea's rapid and broad-based development, which can offer invaluable insights and lessons and knowledge that can be shared with the rest of the international community.

Recognizing this, the Korean Ministry of Strategy and Finance (MOSF) and the Korea Development Institute (KDI) launched the Knowledge Sharing Program (KSP) in 2004 to share Korea's development experience and to assist its developing country partners. The body of work presented in this volume is part of a greater initiative launched in 2007 to systematically research and document Korea's development experience and to deliver standardized content as case studies. The goal of this undertaking is to offer a deeper and wider understanding of Korea's development experience with the hope that Korea's past can offer lessons for developing countries in search of sustainable and broad-based development. This is a continuation of a multi-year undertaking to study and document Korea's development experience, and it builds on the 20 case studies completed in 2010. Here, we present 40 new studies that explore various development-oriented themes such as industrialization, energy, human capital development, government administration, Information and Communication Technology (ICT), agricultural development, land development and environment.

In presenting these new studies, I would like to take this opportunity to express my gratitude to all those involved in this great undertaking. It was through their hard work and commitment that made this possible. Foremost, I would like to thank the Ministry of Strategy and Finance for their encouragement and full support of this project. I especially would like to thank the KSP Executive Committee, composed of related ministries/departments, and the various Korean research institutes, for their involvement and the invaluable role they played in bringing this project together. I would also like to thank all the former public officials and senior practitioners for lending their time and keen insights and expertise in preparation of the case studies.

Indeed, the successful completion of the case studies was made possible by the dedication of the researchers from the public sector and academia involved in conducting the studies, which I believe will go a long way in advancing knowledge on not only Korea's own development but also development in general. Lastly, I would like to express my gratitude to Professor Joon-Kyung Kim for his stewardship of this enterprise, and to his team including Professor Jin Park at the KDI School of Public Policy and Management, for their hard work and dedication in successfully managing and completing this project.

As always, the views and opinions expressed by the authors in the body of work presented here do not necessary represent those of KDI School of Public Policy and Management.

**May 2012**

**Oh-Seok Hyun**

**President**

**KDI School of Public Policy and Management**



# Prologue

Korea was one of the world's poorest countries with per capita GDP of USD 79 in the early 1960s, but the Korean government has aggressively implemented the economic development strategy since 1962. Since then, Korea has achieved an unprecedentedly rapid growth and outshined other emerging economies which had become independent countries since the Second World War. It was the manufacturing sector that drove the full-fledged growth of the Korean economy, and industrial parks have significantly contributed to the growth as the incubators of the manufacturing sector.

To support the export-driven industrial strategy, the Korean government established Korea Export Industrial Park (Guro Industrial Park) in the early 1960s, and established heavy and chemical industrial parks in Ulsan, Changwon and Yeosu. Since then, the Korean government has gradually developed industrial parks that were aligned with the economic development strategies and matched with the level of industrial development, successfully providing industrial locations for fostering of the national strategic industries. As a result, the strategy to develop industrial parks has brought positive impacts such as effective provision of locations for the manufacturing sector and concentration and clustering of the nation's strategic industries, successfully taking a pivotal role in implementing the government-led economic development plans.

There are over 900 industrial parks in Korea as of the end of 2010, and the parks account for approximately 62% and 80% of Korea's total manufacturing production and exports, respectively. As seen in the above, industrial parks have been the key foundation for the national economy and the base of the local economic growth, which has enabled a miraculously rapid economic growth. The contributions of industrial parks to economic growth are viable not only in the past and the present but in the future, since the manufacturing sector is required to serve as a firm foundation for global competitiveness and job creation despite continuous growth of the service sector. Furthermore, industrial parks have recently gained recognition once again as the new growth platform with invisible competitiveness reinforced through cooperation among industry, academia and research; structures advanced by integrating various functions such as production, housing, culture and welfare; and the status as green industrial parks.

This book aims to look back on the history and experiences of development of industrial parks of Korea by compiling the backgrounds of implementation of industrial park development strategies, the process of development and the methods of policy operations. This book will provide useful implications for developing countries that are



interested in Korea's economic development model as it examined the causes of successful implementation of industrial park development strategies and evaluated the results. This book also features cases of operation of industrial park management organizations. Those organizations have played pivotal roles in maximizing functions of industrial parks by attracting appropriate types of businesses in consideration of the purpose of establishment of the parks, and supporting production activities of resident enterprises. Major roles and functions that the organizations have performed at the initial stage of industrial park development were reviewed, and changing roles and services of Korea Industrial Complex Corporation, which has been established in 1997 by integrating management organizations of five regions and managed major national industrial parks of Korea, were examined. Reviewing major programs operated by Korea Industrial Complex Corporation will give insights on challenges currently faced by Korea's industrial parks and the future directions for related policy-making.

The contents of this book are as follows. First, this book will provide the historical and economic backgrounds of industrial park development strategies; the process of industrial park development based on the government policy for industrial location; and the stories told by stakeholders who participated in policy-making and operation of industrial parks in the past. Second, establishment, major services and roles of Korea Industrial Complex Corporation, which was established for efficient management of industrial parks, will be highlighted; and the current status, economic contributions and future challenges of industrial park development will be discussed. Last but not least, this book will provide useful implications for the countries highly interested in Korea's economic development model based on industrial park development, by elaborating on past evaluations on industrial park strategies of Korea.



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## Summary

Korea was one of the world's poorest countries by the early 1960s, but it has achieved an unprecedentedly rapid growth to be an advanced country, prompted by active government strategy for economic development. The driver of Korea's economic growth was the manufacturing sector, and industrial parks have significantly contributed in the course of economic growth as incubators for manufacturing businesses.

Korea established the 1<sup>st</sup> Five-Year Economic Development Plan (1962-1966) in 1962 and aggressively implemented the export-driven industrialization strategy to achieve the self-sustained economic growth by overcoming the challenges including scarce natural resources, the small size of the domestic market, the less competitive private sector and limited capital. To focus on fostering of the export-oriented light industries where Korea had global competitive edges at that time, Korea adopted support systems in terms of foreign exchange rates and government subsidies, while actively developing industrial parks. In particular, the success of Seoul Digital Industrial Park located in Guro-dong, Seoul, which was developed to facilitate the export-oriented manufacturing businesses such as textiles and sewing, has ignited the nation's efforts to develop industrial parks.

The Korean government has taken a phased approach to industrial park development to reflect the level of industrial development and the economic development strategies of each period. In 1960s, the export-oriented industrial parks were developed, aiming to support export-driven growth strategies, while large-scaled heavy industrial parks were built to strategically construct the foundation for the nation's key industries. Korea has pursued industrialization in the form of focused pole development for which large-scaled industrial parks were developed in selected locations to promote the national economic growth by 1970s, and built industrial parks across the nation, aiming to achieve the balanced national development and reduce the regional gaps since 1980s. In 1990s, high-tech industrial parks have been developed as a response to advancement of industrial structures, and various types of industrial parks have been operated in 2000s to respond to diversified industrial structures and the shift of a focus to services.

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The above history indicates that the Korean government has effectively provided industrial parks by making phased industrial location policies customized for economic conditions and industrial policies, in order to achieve two ultimate objectives of industrialization and the balanced national development. Consequently, the strategy for industrial park development led to positive impacts such as effective supply of manufacturing locations and concentration and clustering of national strategic industries, recognized as a contributor to successful implementation of the government-led economic growth plans.

One of the success factors of industrial park strategies is efficient operation of the parks through the separate organizations managing each park. At the early stage of industrial park development, the government established the separate organizations dedicated to development and management of industrial parks for more efficient development and management of parks. In particular, the Korea Export Industrial Corporation was the first competent organization, which was in charge of development and management of parks at first but reinforced its management functions later. It managed parks in Bupyeong and Incheon as well as Korea Export Industrial Complex (later Seoul Digital Industrial Complex) in Guro-dong. Beginning with management of a park in Changwon, Dongnam Industrial Complex Corporation managed parks in the southeastern part of the country, while Gumi Export Industrial Complex Corporation wrote the history of the electronics business of the country, fully supporting the government policy to develop and intensively manage industrial parks for promotion of specific industries. In addition, Banwol Industrial Complex Corporation established in 1977 managed parks in Banwol, Sihwa and Asan areas, and Seonam Industrial Complex Corporation established in 1979 managed parks in the southwestern areas, supporting activation and development of parks.

The corporations handled development and management of parks at first, and then focused on management affairs later during the course of rapid industrial growth. As successful establishment and operation of a specific park determined the success or failure of the government policy to foster a certain industry, these corporations were responsible for early development and stabilization of the parks. Since powerful, centralized leadership was required at the infant stage of fostering of an industry, it was very effective to establish corporations by area and park and provide intensive management and support services. As the economic growth of Korea was stabilized, however, governance of the industrial park management system had to be changed.

The need for changes in the governance system was originated from recognition on the problem of the distributed, fragmented governance system caused by corporations separately managing parks. In 1990s, small-scale parks and agricultural & industrial parks were actively developed as part of the efforts to achieve the balanced national development, allowing more management organizations to emerge. It was required to adopt the centralized approach to management of industrial parks at the national level, and the functions to support resident enterprises had to be reinforced. Furthermore, a management agency capable of efficient and effective operation of various national projects had to be

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established to activate industrial parks and local economies. Against this backdrop, Korea Industrial Complex Corporation (KICOX), which has managed major national industrial parks, was established.

As KICOX was established, the existing corporations were restructured to regional headquarters, enabling efficient HR allocation and services through the integrated industrial park management system. Support services were newly included to the main functions of KICOX. Before integration, the corporations focused on the functions of park management, including sales and management of industrial lands; and development and operation of infrastructure including public facilities. The corporations newly added their support functions such as support for establishment of plants; development and provision of special industrial parks; and financial and HR support to the existing management functions. In addition, Industrial Site Research Center was newly established to reinforce surveys on short- and long-term demands for industrial lands and researches on location policies.

The recent changes in the industrial and economic paradigms have led to even more concentrated support to comprehensively transform industrial parks into innovative industrial and technology centers. Clustering of industrial parks and advancement of structures of parks emerged as new management functions, and the scope of industrial park management was expanded to include a broad range of services such as support for establishment of factories for improved competitiveness of resident enterprises; operation of knowledge industry centers (former apartment-type factories) and venture business clusters; and development and provision of small- and mid-sized industrial parks. Growing interests in sustainable growth have ignited the efforts to build eco-friendly industrial parks, and the public awareness on the quality of life of workers rapidly turned QWL Valley Project into one of the primary functions of industrial park management.

Changes in industrial structure have caused alterations in roles and functions of industrial parks, but it is obvious that Korea's industrial parks have played a central role in and contributed to development of the national industrial competitiveness and the balanced national development for six decades.

As of the end of 2010, Korea had more than 900 industrial parks, which accommodated 58,761 enterprises and approximately 1.58 million workers in combination. The total production amount of industrial parks reached KRW 844 trillion, of which USD 343.1 billion was exported. Most notably, there have been remarkable achievements made by industrial parks as main axes and growth engines for remarkable economic growth and development of the nation. Manufacturing businesses of industrial parks accounted for only 3% of the nation's manufacturing sector in 1970s, but the percentage grew to 12.4% in 1990s. The number of workers of manufacturing businesses of industrial parks accounted for 2.3% of the total workers of the manufacturing sector in 1970s, but it grew more than ten times to 27.8% in 1990. Currently, industrial parks account for about 62% and 80% of manufacturing production and exports, respectively. In addition, major industrial parks of Korea have served as national growth engines as centers of key manufacturing industries such as automobile, machinery and electronics.

Korea's industrial parks have contributed to not only national economic growth but also creation of local jobs, activation of local economics and growth of cities as they were developed by considering stages of industrial development and local characteristics. Seashore Industrial Park in southeastern Korea, for example, was built in 1970s for promotion of heavy industries and developed into a new industrial city, playing a pivotal role in terms of local policies. In addition, growth of industrial cities has affected adjacent areas, inducing growth and expansion of bed towns.

Looking back on the short history of Korea's industrial park development for over 50 years since the early 1960s, industrial parks have accounted for material portions in the national economy and made remarkable achievements. Korea's industrial parks have driven development of the manufacturing sector and the national economic growth thanks to the following factors:

First, successful industrial park strategy of Korea was attributable to firm commitment of the national leader and full-fledged support of the central government. In the early 1960s, Korea had powerful presidential government. The interests and enthusiasm of the president were combined with capable government officials who implemented the policy. The centralized administrative system created the perfect setting for the central government to extend full-fledged, consistent support for development of industrial parks. As industrial park development is a large-scaled program requiring a huge amount of budgets for expropriation and infrastructure building, strong commitment of the president and the efficient administrative system were the critical factors for successful policy implementation.

Aggressive budget allocation of the central government also contributed to the success. The government of Korea established 'Industrial Base Development Corporation' as a wholly owned corporation dedicated to development of industrial parks by contributing KRW 100 billion in 1974. The Corporation granted tax exemptions and expropriation, and had the discretion to take borrowings upon approval of the Minister. The heavy chemical industrial park development program of Korea was financed with the special account of the central government and the Corporation operated the government contract programs in 1970s. This approach enabled project developer to operate projects without the burden of the huge initial investments or disinvestment. The Korean government has invested resources in development of industrial parks to achieve efficiency, despite limited national finance.

Second, one of the major contributors to efficient implementation of industrial park policy was selection and application of industrial location policy customized for the level of the national economic development. At the early stage of implementation of its economic development strategy, the Korean government took the unbalanced growth approach enabled by fostering of specific industries, and used the growth-pole development method in which large-scaled investments were concentrated on a few areas. It was inevitable, considering the lack of financial capability of the government, and it was a very effective solution to build the foundation for industrialization and growth with limited resources.

Many of the less developed countries and developing countries have failed to recognize the current level of development and by simply benchmarking the success cases of advanced

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countries' policy implementation. Korea has made industrial development strategy by consistently reflecting on its circumstances during the course of its successful development, and implemented industrial location policy and fostered industrial parks in a timely and effective manner to successfully implement the industrial development strategy. Not all of the industrial park strategies of the Korean government have succeeded, but the fact that it has effectively allocated and concentrated resources through strategic judgment whenever modification of policy was necessary would be a meaningful implication.

Third, Korea's industrial park development strategy succeeded because the policy was implemented based on the long-term insights and detailed visions. In order to build the industrial foundation for self-sustained economic growth and build national competitiveness through industrial advancements, the industrial park development policy was closely aligned with the government's mid- to long-term economic development strategy and the national strategic industry fostering policy, and implemented in the long term with a comprehensive, detailed vision. Given the economic conditions and the industrial structure of Korea, the industrial parks were established with the detailed roadmap for decades.

In addition, institutional systems well arranged for development and support of industrial parks also significantly contributed to the success of the policy. Korea enacted laws for effective development of industrial parks, and integrated and revised the laws and regulations to reflect changes of the circumstances. Korea enacted laws and regulations applicable to development and management of industrial parks; and proper locations and integration of industries, in order to provide systematic support throughout the entire lifecycle of industrial parks from establishment to follow-up management. The government also organized and operated teams dedicated to development and management of industrial parks at each government bodies, maximizing the results of the industrial park strategy.

Last but not least, establishment and efficient operation of the industrial park management agencies are critical for success of the industrial park strategy. As effective development of industrial parks required well-arranged systems and organizations, follow-up management of industrial parks require systematic management systems and organizations.

There were some drawbacks in the industrial park model of Korea, which has been recognized as a successful policy case. The growth pole development approach taken by the mid 1970s caused overpopulation in the Seoul Metropolitan Area and the southeastern area, and population decrease and slowdown of industrial activities were continued in less developed areas for a long time, weakening the national integrity due to regional gaps. As the knowledge-based economy has emerged, there is a growing need for change in the roles of industrial parks that have focused on supplying industrial location to the manufacturing sector. It is critical to build combined parks by adding residential, R&D and support services to the existing industrial parks with a focus on production functions. It is required to make diverse efforts to build eco industrial parks by applying the new paradigm of green growth to industrial parks. As industrial parks have been operating for almost half a century, there are many industrial parks aged 30 years or older in Korea. Those parks are losing competitiveness due to aging of infrastructure and lack of support facilities.

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Changes in industrial structure have caused alterations in roles and functions of industrial parks, but it is obvious that Korea's industrial parks have played a central role and contributed to development of the national industrial competitiveness and the balanced national development for six decades. Korea's experience will provide useful implications for the countries highly interested in Korea's economic development model based on industrial park development, by elaborating on past evaluations on industrial park strategies of Korea.

First, it is required to build the steering system enabling cooperation and communications among related government agencies, and to prepare applicable laws and dedicated organizations prior to development of industrial parks, in order to improve effectiveness of the industrial park development strategy. Korea's industrial park development strategies succeeded thanks to the efficient administration system consisted of capable economic officials as well as strong commitment of the national leader. Development of the comprehensive governance system for post-development management services of industrial parks is as critical as development of the governance system for implementation of the industrial location policies at the central governmental level. If the government implements the industrial park development strategy through massive investments, an expert management organization shall be established for thorough management and supervision, and the professional support system shall be developed to facilitate growth and improve competitiveness of resident enterprises.

Second, to successfully implement the government strategy, the strategy shall be customized for the economic conditions and other circumstances of the period. Korea's industrial park model succeeded as it was ideally selected and applied in consideration of the level of Korea's economic development. Therefore, the countries targeting to develop industrial parks are recommended to consider the trends, and focus on developing the most ideal industrial park model for each country. Developing models of industrial parks, given respective circumstances, and reflecting the models to the national policies are relevant to the purpose of industrial park development of each country. Less developed countries and developing countries are required to look for the most ideal models by thoroughly reviewing the domestic conditions instead of indiscriminately benchmarking the success cases of advanced countries.

Lastly, given the fact that industrial park development is a project requiring a huge amount of investments, it is required to strategically plan and implement the projects. In addition, in order to activate industrial parks by effectively attracting resident enterprises, various incentives need to be provided. In the Korea's case, incentives for industrial parks were divided into incentives for developers of parks and incentives for resident enterprises.





2011 Modularization of Korea's Development Experience  
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# Chapter 1

## Backgrounds of Industrial Park Development Strategies

### 1. Historical Backgrounds of Industrial Park Development Strategy

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# Backgrounds of Industrial Park Development Strategies

## 1. Historical Backgrounds of Industrial Park Development Strategy

The Korean economy was in a very disadvantaged condition after 1945 due to the previous Japanese Occupation (1910-45) and the Korean War (1950-53). The industrial structure of Korea highly depended on agriculture, and most of SOC built through the US assistance was destructed during the War. Since the ceasefire in 1953, Korea has continuously made efforts to recover from the War and rebuild the national economy. In particular, the economic recovery was driven by fostering the so-called “Three White Industries (flour, sugar and cotton),” prompted by the U.S. assistance. Nevertheless, Korea was one of the world’s poorest countries with per capital GDP of USD 79 by 1960, and its poor economic condition was well illustrated by the trade deficit of USD 0.3 billion, which was 16% of GNP. Furthermore, most of industrial facilities were established in North Korea during the Japanese Occupation and the Korean War devastated physical infrastructure of the country. There were big obstacles such as scarce resources, a small scale of the domestic market, vulnerable private enterprises and lack of capital for the self-directed economic growth.

To overcome such challenges, the Korean government introduced ideas such as building an export-oriented industrial country, government-led economic development, and unbalanced economic development with focuses on fostering specific industries, expansion of foreign investments and domestic savings and the so-called “Growth-First” strategy as a basis for its policy-making. Such policies were embodied in the First Five-Year Economic Development Plan (1962-66) established in 1962, leading to full-fledged implementation of the export-driven industrialization strategy developed to achieve the self-supporting economy. To aggressively foster the export-oriented light industries which had the global competitiveness at that time, the government intensively developed<sup>1</sup> industrial parks while

<sup>1</sup> During the First Five-Year Economic Development Plan, a total of 10.7% of the government investments was invested for development of industrial parks (Korea Industrial Complex Corporation 2010).

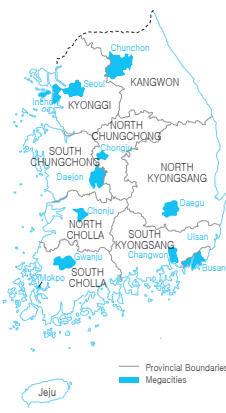
adopting support programs in the forms of foreign exchange rates and government subsidies.

Ulsan Industrial Park, of which development began in 1962 for fostering of heavy and chemical industries, was the Korea's first industrial park, while most of industrial parks established in 1960s focused on light industries. Guro Industrial Park is a representative park that has symbolized the rapid growth of the Korean economy. The official name of Guro Industrial Park is Korea Export Industrial Park (now Seoul Digital Industrial Park) and it was designated as an incubator of export industries in 1964.

Korea targeted to foster light industries in 1960s to actively leverage global competitiveness of cheap labor. The government established the Korea Export Industrial Park 1 in Seoul where various resources were concentrated and securing labor was easier. The Korea Export Industrial Park 1 located in Guro-dong, Seoul, has successfully attracted resident enterprises, gaining high attention of the public. Building on the success of the Park 1, the government additionally developed the Park 2 and the Park 3, completing a large-scaled industrial park with the total area of 1,982,000m<sup>2</sup> in combination. Later, the Park 4, the Park 5 and the Park 6 were established in Incheon, Bupyeong and Juan, respectively, mainly accommodating light industries such as textiles, sewing, wigs and shoes serving as the representative base for Korea's export industries until the mid-1980s. The success of the Park paved the way for local governments to participate in industrial park development, and industrial parks were actively developed in not only major local cities such as provincial capitals but also small- and mid-sized cities.

Beginning with the successful case of planned industrial park development, which aimed to support the economic development strategy developed in 1962, the Korean economy has continuously established industrial parks that were aligned with economic conditions and national development strategies.

#### Box 1-1 | Administrative divisions of Korea: Provinces, mega cities, and provincial cities



Korea is divided into 8 provinces (do), 1 special self-governing province (teukbyeoljachido: Jeju), 6 metropolitan cities (gwangyeoksi: Busan, Incheon, Daejeon, Daegu, Gwangju, Ulsan), and 1 special city (teukbyeolsi: Seoul). These are further subdivided into a variety of smaller entities, including cities (si), counties (gun), districts (gu), towns (eup), townships (myeon), neighborhoods (dong) and villages (ri).



2011 Modularization of Korea's Development Experience  
Industrial Park Development Strategy  
and Management Practices

## Chapter 2

### Purposes and Benefits of Industrial Park Development

1. Purposes of Industrial Park Development
2. Benefits of Industrial Park Development

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# Purposes and Benefits of Industrial Park Development

## 1. Purposes of Industrial Park Development

Systematic operation of the national land development programs including the industrial park development program has been recognized as one of major contributors to Korea's economic development. The economic development strategy that the Korean government has implemented since 1962 was a comprehensive and broad-ranged strategy encompassing interest rates, exchange rates, tariff, subsidy and planned use of the national land. Most notably, effective implementation of the national land development programs, especially efficient supply of industrial locations, has played a meaningful role in economic growth by providing the foundation for the growth through expansion of SOC.

Industrial parks refer to 'the clustered land for which comprehensive plans are established and which are developed and managed to provide industrial locations in accordance with the plans'.<sup>2</sup> In other words, industrial parks refer to the land well prepared for industries based on the comprehensive 'plans.' Accordingly, industrial parks are also dubbed 'planned location',<sup>3</sup> in contrast to locations of individual businesses. Industrial parks may be similar to industrial areas where businesses are clustered, but there are stark differences between industrial parks and industrial areas. In general, the requirements for industrial parks include prior master planning, follow-up management through management organizations and facilities supporting production of resident enterprises.

The purposes of industrial park development are broadly divided into regional development and industrialization.<sup>4</sup> The U.K., a pioneer in industrialization, was the first

<sup>2</sup> Yoo, Young Whee, *Industrial Park in Korea*, Korea Research Institute of Human Settlements, 1998.

<sup>3</sup> The term 'Planned Location' was first used in the First National Land Development Plan (1972-1981) which categorized industrial locations into planned locations and locations of individual businesses (Yoo 1998).

<sup>4</sup> Ibid.

country that developed an industrial park for the purpose of regional development. Unlike developed countries such as the U.K., developing countries tend to develop industrial parks for the purpose of industrialization. Korea is a representative country that has successfully achieved industrialization in a short time through industrial park development.

In less developed countries, industrial park development primarily aims to supply well-prepared industrial locations at low costs, and Korea also focused on the same purpose at the initial stage of industrialization. However, as the country has been industrialized and the pre-conditions for national economic development have been secured, the primary purpose of industrial park development has been replaced with the balanced national development or environmental preservation. As unemployment has emerged as a national issue in developed countries and attraction of investments has been one of the key objectives of national development, the focus of industrial park development has been shifted into supplying locations of adequate scales to investors on time since the late 1990s.

The government of Korea has effectively provided industrial parks by making industrial location policies aligned with economic conditions and directions of industrial policies to achieve two major goals, early industrialization and the balanced national development. To sum up the industrial park development policies of Korea, Korea developed industrial parks in limited regions with a focus on economic efficiency until 1970s, while establishing small- and mid-sized industrial parks across the nation with a focus shifted into the balance of growth and welfare since 1980s, aiming to improve efficiency in resource allocation and achieve the balanced national development.

## 2. Benefits of Industrial Park Development

Major benefits of industrial park development include businesses' easy and convenient access to industrial locations, improved efficiency in facility investments through clustering of infrastructure and efficient use of the national land. Industrial park development may facilitate clustering of businesses by supplying locations equipped with quality infrastructure to the areas lacking industrial locations.

Industrial park development may bring the following benefits: in terms of land usage, industrial parks enable intensive and efficient use of limited spaces, and contribute to reasonable allocation of industries. In the economic aspect, industrial parks reinforce competitiveness by stimulating cooperation and systematization of industries through clustering of similar businesses or related businesses; and activate development of technologies and help production cost saving by locating manufacturing-related facilities such as research, education, distribution and welfare adjacent to the manufacturing facilities. In addition, efficiency of SOC investments is improved by systematically developing and efficiently using SOC such as roads, ports, water systems and power systems; and productivity is improved by providing pleasant and convenient production environments with adequate green areas and various support facilities. From the environmental perspective, industrial

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parks minimize impacts of industrial locations by installing and operating environmental pollution prevention facilities in packages. Finally, approvals required in accordance with applicable laws and regulations are deliberated and processed in a lump, enabling streamlining of industrial park development procedures and easier expropriation of land.



2011 Modularization of Korea's Development Experience  
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## Chapter 3

### History of Industrial Park Development and Current Status

1. Industrial Location Policies and Industrial Park Development
2. Types and Status of Industrial Parks
3. Government Support System for Industrial Parks

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# History of Industrial Park Development and Current Status

## 1. Industrial Location Policies and Industrial Park Development

As mentioned above, Korea's industrial parks have been developed with Korea's industry promotion policies, since the government of Korea promoted full-fledged economic development. Aligned with economic development policies and changes in industrial structures, industrial parks for export industries were developed in 1960s to implement the strategy to achieve industrialization through exports, and large-scaled coastal industrial parks were developed in 1970s according to the policy to foster heavy and chemical industries. In 1980s, local industrial parks and agricultural industrial parks were established to promote the balanced national development, and various types of industrial parks were developed in 1990s to meet the needs of newly emerged IT and knowledge-based industries. Since 2000s, the government has implemented the policy to foster industrial parks as specialized clusters designed to foster high-tech industries and reinforce the knowledge-based economy.

**Table 3-1 | History of Korea's Industrial Location Policies**

Items	1960s	1970s	1980s	1990s	2000s
Stage of Development	The formative stage of the foundation for industrial development	The stage of expansion of the foundation for heavy and chemical industries	The stage of adjustment of industrial structure	The stage of acceleration of industrial development	The stage of growth and expansion of industrial development
Policy Guideline	<ul style="list-style-type: none"> <li>■ Government-led export policy with a focus on light industries</li> <li>■ Expansion of SOC</li> </ul>	<ul style="list-style-type: none"> <li>■ Government-led heavy and chemical industry promotion policy</li> </ul>	<ul style="list-style-type: none"> <li>■ Industrial rationalization of heavy and chemical industries</li> <li>■ Development of tech-intensive industries into export industries</li> </ul>	<ul style="list-style-type: none"> <li>■ Opening and the private-led economic operation (the first half)</li> <li>■ Industrial restructuring under IMF guidances (the second half)</li> </ul>	<ul style="list-style-type: none"> <li>■ Fostering of the knowledge-based industry and future industries</li> <li>■ Transformation into the innovation-led economy and the balanced development of various sectors</li> </ul>
Key Industries	<ul style="list-style-type: none"> <li>■ Textiles, ports, electric products and shoes</li> </ul>	<ul style="list-style-type: none"> <li>■ Petrochemical, steel, motors and machinery industries</li> </ul>	<ul style="list-style-type: none"> <li>■ Semiconductors, electronics and motors</li> </ul>	<ul style="list-style-type: none"> <li>■ Promotion of the software industry with a focus on services</li> <li>■ Development of semiconductors, precision chemistry and automation programs</li> </ul>	<ul style="list-style-type: none"> <li>■ ICT, gaming and bio industries</li> </ul>
Location Policy	<ul style="list-style-type: none"> <li>■ Planned location development program</li> <li>■ Locations for export-centered light industries</li> </ul>	<ul style="list-style-type: none"> <li>■ Development of large-scale industrial parks as heavy and chemical industrial parks</li> <li>■ Controlled development of the Seoul Metropolitan Area</li> </ul>	<ul style="list-style-type: none"> <li>■ Improvement of internal stability of industrial parks</li> <li>■ The balanced national development</li> <li>■ Development of Agricultural &amp; Industrial Parks</li> </ul>	<ul style="list-style-type: none"> <li>■ Diversification of types of locations</li> <li>■ Eased regulations on locations</li> <li>■ Renaming of industrial parks</li> <li>■ Streamlining of development procedures</li> </ul>	<ul style="list-style-type: none"> <li>■ Specialized clusters</li> <li>■ Support for the knowledge-based economy and clustering</li> <li>■ Improvement of competitiveness of existing parks</li> </ul>

Items	1960s	1970s	1980s	1990s	2000s
Applicable Laws	<ul style="list-style-type: none"> <li>■ Comprehensive national land development plan</li> <li>■ The Act on Development of Export Industrial Parks</li> <li>■ The Machinery Industry Promotion Act</li> <li>■ The Shipbuilding Industry Promotion Act</li> <li>■ The Electronics Industry Promotion Act</li> </ul>	<ul style="list-style-type: none"> <li>■ The Local Industry Development Act</li> <li>■ The Industrial Complex Development Promotion Act</li> <li>■ The Distribution of Industry Act</li> </ul>	<ul style="list-style-type: none"> <li>■ The Seoul Metropolitan Area Planning Act</li> <li>■ The Small-and Medium-Sized Enterprises Promotion Act</li> <li>■ The Agricultural and Fishery Income Development Promotion Act</li> <li>■ The Industry Development Act</li> </ul>	<ul style="list-style-type: none"> <li>■ The Industrial Location Act</li> <li>■ The Distribution of Industry Act</li> <li>■ The revised National Land Utilization Control Act</li> <li>■ The Act on Special Cases of Industrial and Technical Complex Support</li> </ul>	<ul style="list-style-type: none"> <li>■ The revised Distribution of Industry Act</li> <li>■ The Cultural Industry Promotion Act</li> <li>■ The National Land Planning and Utilization Act (2002)</li> </ul>
Remarks	Development of Ulsan Industrial Complex	Local Industrial Development Promotion Zones Southeastern Large-Scale Industrial Complex Development of Free Export Zone	Southwestern Large-Scale Industrial Complex Development of Agricultural & Industrial Parks	Increase of locations of individual businesses Development of Techno Parks Construction of Apartment-type Plants (Flatted Factory)	Urban High-Tech Industrial Parks Cultural Industrial Parks Foreign Investment Zones High-Tech & Bio Park

Source: KICOX, 2010 Handbook on the Industrial Location, 2009.

## 1.1 Export-Driven Industrial Development Policy and Industrial Park Development in the 1960s

Korea began its full-fledged efforts to develop industrial parks in 1960s, and adoption of the First Five-Year Economic Development Plan (1962-66) signaled such efforts. In the early 20<sup>th</sup> century, most of industrial facilities were located in North Korea during the Japanese Occupation (1910-45), and the Korean War (1950-53) further weakened the fragile industrial and economic foundation of Korea.

The manufacturing sector merely satisfied the needs of people for basic livelihood. The unemployment rate was 25%, and per capita GNP stood at USD 100.<sup>5</sup> At that time, Korea was implementing the import substitution industrial strategy with a focus on consumer goods, depending on the U.S. assistance, but there was a limitation to achieve sustainable growth due to the narrow domestic market. Korea was in the unfavorable conditions not only economically but also institutionally, since there were no institutions supporting industrial infrastructure and industrial locations. Enterprises selected their locations without any guidance, and small- and mid-sized factories were concentrated in major cities including Seoul, Incheon, Busan and Daegu.

It was urgently required for the government to resolve such structural problems and build the foundation for early industrialization and the self-supporting economy. The government finally developed the aggressive economic development strategy. The First Five-Year Economic Development Plan (1962-66) featured basic objectives such as removal of the vicious circle of the society and the economy; and building of the self-supporting economy. Major action plans of the Plan included expansion of the key industries (fertilizers, cements, steel, machinery and oil refinery), building of SOC, job creation by using unused resources, preservation and development of the national land and improvement of the international balance of payments mainly by boosting exports. As for financing the plan, the government decided to first fully use domestic resources and labor, and then attract foreign capital.

While formulating the full-fledged economic development plan, the government implemented an intensive industrial policy. First, the government prepared for construction of a comprehensive industrial district where related facilities would be accommodated to foster the nation's key industries including oil refining, fertilizers and steel, which was well aligned with one of main action plans of the First Five-Year Economic Development Plan. The legal ground for development of the district was also prepared, and the Act on Special Cases of Land Expropriation for Industrial District Development (1962) was enacted one week after the First Five-Year Economic Development Plan was announced. This Act defined the scope of special industrial districts, and exempted districts included in the industrial district development plans from seeking approvals required in accordance with the Act on Land Expropriation,<sup>6</sup> supporting acceleration of industrial park development. Later, the Ordinance on Decision-Making for Designated Industrial Districts (Ordinance No. 403, January 27, 1962) was enacted and announced in accordance with the Act on Special Cases of Land Expropriation for Industrial District Development, in order to designate Ulsan areas as an industrial district. Accordingly, Ulsan Industrial Park was designated as the nation's first industrial park, according to the plan to build oil refinery, steel and fertilizer plants and develop an industrial city with the population of 0.5 million.

<sup>5</sup> The Compilation Committee of 60-year History of Korean Economy, *The Korean Economy: Six Decades of Growth Development III*, Korea Development Institute, 2010, p.21

<sup>6</sup> An article about the Act on Special Cases of Land Expropriation for Industrial District Development, *Dong-A Daily News*, the January 22nd issue, 1962

### Box 3-1 | The First Industrial Park of Korea, Ulsan Industrial Park

The First Five-Year Economic Development Plan, which was aggressively implemented from 1962, highlighted the needs for comprehensive industrial zones for development of the nation's key industries including fertilizers, oil refining and chemical industries, as well as the strategy to foster export industries. The government designated Ulsan with the area of 46.1km<sup>2</sup> as the industrial zone, and announced that it would develop the Korea's first industrial park in Ulsan in 1962. Based on the strong will of the government to build the industrial powerhouse, Ulsan was promoted to a city in June 1962 and Ulsan Port was designated as an open port area in 1963. The large-scale petrochemical industrial park was completed in 1969 in accordance with the Petrochemical Industry Development Plan adopted in December 1966.

At the initial stage, the growth of Ulsan Industrial Park was attributable to easy access to locations for plant construction by key industries and related industries; as well as intensive investments. Massive investments were made for grading work and construction of additional support facilities such as roads, civil engineering systems, industrial water systems and ports. The total investment made to Ulsan Industrial Park during the period of the First Five-Year Economic Development Plan reached KRW 45.3 billion, which accounted for 7.7% of the total national investments and 24.8% of the total investments of the mining industry. During the Second Economic Development Plan (1967-71), a total of KRW 84.1 billion, which accounted for 4.6% of the total national investments, was invested to develop a petrochemical industrial park and construct ports. During the Third Economic Development Plan (1972-76), a total of KRW 605.4 billion was invested for construction of plants (KRW 544.9 billion), construction of ports and development of industrial water systems (KRW 60.5 billion).

As a result, Ulsan Industrial Park was developed into a cluster of petrochemical industries, and the Park was further expanded to accommodate motor-related factories and parts factories. Later, the shipbuilding industry was developed and large enterprises operated related engine, steel, lumber and heavy electric equipment businesses at the Park. In addition, Onsan Industrial Park was developed adjacent to Ulsan Industrial Park, accommodating oil refinery and non-ferrous metal processing factories. As related industries created an industrial belt and the industries dramatically grew, the production volume of Ulsan Industrial Park rapidly increased from KRW 0.73 billion of 1963 to KRW 98 trillion in 2009, and its exports also grew from USD 0.3 million of 1963 to USD 44.7 billion in 2009, recording the largest production and export volumes among Korea's industrial parks. Currently, the Park is being evolved into an advanced high-tech industrial park producing industrial robots, precision and electronic products and chemical products.

**Figure 3-1** | A Groundbreaking Ceremony for Ulsan Industrial Park and Petrochemical Plants in 1963



**Figure 3-2** | Ulsan Industrial Park in 1970s and the Present



Although Ulsan Industrial Park was the first park designated for fostering of the nation's key industries, industrial parks developed in 1960s mostly focused on light industries, according to the nation's major economic policy to drive exports. The policy aimed to attract foreign capital and leverage the highly skilled potential unemployed as productive human capital to produce and export labor-intensive products to vast overseas markets. Based on the policy, the government developed export industrial parks for fostering of labor-intensive light industries such as wigs, textiles and shoes.

However, Korea's industrial development was at the low level, and the country also lacked resources and technologies to meet the requirements for the government policy to drive exports. Accordingly, the government targeted to attract capital and technologies of Japanese businesses run by Korean-Japanese to build the foundation for the national industrialization. First, the government organized the Export Industry Promotion Committee in March 1963, and made activities to attract capital and technologies of Korean-Japanese, concluding that the close partnership between the government and industry would be critical for fostering of export industries. Korean-Japanese entrepreneurs who intended to advance into the Korean market proposed development of channels that would provide administrative support for government-industry relations, and construction of Export Industrial Parks for bonded processing. Korea Export Industrial Estates Corporation was

established on May 20, 1964, and the Act on Development of Export Industrial Parks<sup>7</sup> was enacted on June 14, 1964.

The locations with favorable conditions for fostering of light industries such as with easy access to labor and efficient support for production of export industries were considered as candidate sites of industrial parks for fostering of export industries. Gyeonggi and Incheon areas with relatively more favorable conditions such as urban infrastructure and a port were reviewed, and the finally selected location was Guro-dong, Seoul, with advantages such as easy in land acquisition and labor access.<sup>8</sup> Korea Export Industrial Parks were continuously expanded, and a total of six parks were established in Seoul and Incheon.

### Box 3-2 | Development of Korea Export Industrial Park

Korea Export Industrial Parks were established in 1960s when the Korean government implemented the export industry promotion policy to modernize the nation and build the self-supporting economy. The full-fledged development of Korea Export Industrial Parks was reviewed in 1963 when Korean-Japanese entrepreneurs who intended to advance into Korea and Federation of Korean Industries officially proposed development of the Parks. The Parks began operation as corporations run by industries at the initial stage, but they soon reached the limit of private-led development. The Parks had not been fully developed until the government-led their development. Development of Korea Export Industrial Park 1 with the total area of 452,900m<sup>2</sup> was launched in 1964 and completed in 1966. Since then, the Parks were expanded in accordance with the Act on Development of Export Industrial Parks and the Urban Planning Act. Korea Export Industrial Park 2 with the area of 395,800m<sup>2</sup> and Park 3 with the area of 1,131,000m<sup>2</sup> were additionally designated, and Park 4, Park 5 and Park 6 were established in Bupyeong and Incheon area.

The efforts to attract businesses to the Parks were launched with the full-fledged establishment of the Parks. It was not easy to attract resident enterprises as planned. Fewer businesses intended to move into the Parks than expected at the initial stage, but the number of resident enterprises gradually increased in 1967 when the Parks were completed. The Parks continuously grew, supported by the policy to drive exports through light industries continuously implemented in 1960s and the

<sup>7</sup> The Act was enacted to promote development of export industries by constructing and operating industrial parks for export businesses, and the term "Industrial Parks" was first used in the Act. Export Industrial Parks were constructed in Seoul (Park 1, Park 2 and Park 3), Gumi and Yiri (now Iksan City) in accordance with this Act.

<sup>8</sup> The projected site for Guro Industrial Park (Korea Export Industrial Park) consisted of rice paddies, fields and mountains in the early 1960s, and the area was thinly populated except for a refugee camp to which residents moved from downtown areas due to urban redevelopment. The land price was low, and there was a river where water intakes could be built adjacent to the site, providing easy access to locations. In addition, the site was very favorably located as it was adjacent to the National Road No. 1 connecting Yeongdeungpo and Suwon and within the 5km-distance from Yeongdeungpo Station of Gyeongbu Railroad.



early 1970s and establishment of Korea Export Industrial Estates Corporation which managed the Parks. In 1969 when Park 1 and Park 2 were operated, textile and sewing industries accounted for 40.3% of the total export volume of the Parks. The industries continuously thrived from 1969 to 1980 by accounting for 43.3% of the annual export amounts with the largest share in exports for the 12 years.

However, the Parks became hollow in 1980s, due to growing protectionism of developed countries, labor price hikes, job seekers' avoidance of the so-called "3D" industries and transfer of manufacturing facilities to overseas locations. To deal with the situations, the government developed the Guro Industrial Park Advancement Plan in 1997, and changed the types of businesses accommodated from manufacturing into highly value-added industries such as IT and knowledge industries. In 2000, the Park was renamed as Seoul Digital Industrial Park, and rapidly restructured into a park specialized in high-tech and knowledge industries including IT and software. As of the end of 2010, the Park accommodated over 126,000 workers and 10,349 companies as an Urban High-Tech Industrial Park.

**Figure 3-3 |** A Ceremony of Completion of Korea Export Industrial Park in 1964 and the Present



Industrial park development in 1960s, which includes development of Korea Export Industrial Parks, was attributable to the economic policy which aimed to achieve early industrialization; and the government policies related to national land also supported development of industrial parks. In 1962, the Urban Planning Act was enacted on the date of enactment of the Act on Special Cases of Land Expropriation for Industrial District Development. The Urban Planning Act was not enacted to promote industrial park development, but it defined matters related to industrial land development within the scope of urban planning. In 1963, the National Land Planning Act was enacted to comprehensively use, develop and preserve natural conditions of the national land and keep the balance

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between industrial location and living environment. The Act provided the legal basis for the government to select and develop industrial locations, which had been selected by individual businesses until then. Enactment of the Act has led to enactment of the Act on Development of Export Industrial Parks.

Korea's efforts to develop industrial parks in 1960s can be summarized as industrial park development to foster export-oriented industries, but the efforts to designate industrial parks for fostering of the nation's key industries and develop private parks were continued. Pohang City was selected as a location for the steel industry, and designated as a projected site for industrial location development in 1967 in accordance with the Urban Planning Act. In addition, the Electronics Industry Promotion Act was enacted in 1969 to foster the electronics industry, and Gumi Industrial Park was designated in 1969 in accordance with the Act. However, the key industrial parks for fostering the nation's key industries had not been developed and activated in a full scale until the early 1970s. In 1968, private-led industrial parks were developed in major cities such as Busan, Daegu, Incheon and Seongnam as part of the industrial location development programs, in addition to government-led large-scaled industrial parks.

To sum up, Korea's industrial location policies in 1960s focused on development and construction of Export Industrial Parks according to the government-led export-oriented industrial promotion policy. Korea's industrial parks were successfully stabilized at the initial stage of economic development, thanks to the efforts to build the foundation for full-fledged industrialization, prepare institutional and legal grounds for industrial park development and build the powerful support system which the government had formerly made.

## 1.2 Fostering of Heavy and Chemical Industries and Industrial Location Policy in the 1970s

In the early 1970s, the Korean government recognized the need to change its policy that has focused on export-oriented light industries of 1960s. The strategy to develop labor-intensive labor industries into export industries contributed to export growth and job creation of the country, but it also had negative effects. A huge amount of foreign capital was introduced mainly in the forms of loans to boost exports and develop new industries, increasing dependence on imported raw materials, machinery and equipment. In addition, changes in external conditions represented by fiercer global competitions prevented the government from pursuing sustainable economic growth only with the export-oriented policy through labor-intensive light industries. Korea had to adopt a new paradigm for economic development and restructure its industrial structure. The government restructured the industrial structure from the previous one focused on labor-intensive light industries, while implementing the policy to foster heavy and chemical industries.

As the government focused on the heavy and chemical industry promotion policy, the industrial location policy was also changed considerably. Large-scaled coastal industrial

parks were developed in a full scale as heavy and chemical industrial parks. At the same time, the existing export-oriented policy was continuously implemented and institutional support systems for industrial park development at the national level were continuously introduced.

Looking back on 1960s, industrial park development was based on the economic development plans, plans to develop specific regions and the Urban Planning Act, rather than a comprehensive, unified system. Accordingly, there was no sufficient administrative and financial support during the period. It was difficult to construct and develop industrial parks in provincial locations, and local governments faced financial difficulties in early 1970s when the industrial park development boom of the private sector was over. Against this backdrop, the Local Industry Development Act was enacted in 1970 to reinforce administrative, tax and financial benefits for local industrial parks. The Act aimed to narrow down the regional gaps by promoting proper distribution of the industry, and defined matters related to designation of the Local Industry Development Promotion Districts. The Act also mandated the government to provide support for industrial parks designated by the central government and local governments. Industrial parks, which were developed through industrial location programs in accordance with the Urban Planning Act, were changed into Local Industry Development Promotion Districts. Thanks to the efforts made in early 1970s, the institutions for industrial parks were improved at the local and national levels, and various tax and financial benefits for resident enterprises were expanded.

The economic policy of Korea focused on intensive promotion of heavy and chemical industries in 1970s. However, the government began promoting heavy and chemical industries in 1960s as part of its policy to promote designated industries. When the government implemented the export-oriented economic policy in 1960s, it already included the programs to develop infrastructure for the nation's key industries including fertilizers, oil refinery and chemistry to the First Five-Year Economic Development Plan. In addition, the government also developed an industrial park dedicated to the steel industry. Such willingness was also reflected to the Second Five-Year Economic Development Plan (1967-71), and the acts for development of individual industries<sup>9</sup> were enacted.

The government's commitment to promotion of heavy and chemical industries and efforts to advance the industrial structure were further reinforced in 1970s. With the slogan of the growth-oriented hard state,<sup>10</sup> the government-led heavy and chemical industrialization where the central government selected and supported specific industries and businesses under the powerful directed economic leadership. Most notably, the government implemented the plan to foster tech- and capital-intensive heavy and chemical industries into export industries by making the Declaration of the Heavy and Chemical Industrialization in 1973.

<sup>9</sup> 「The Machine Industry Promotion Act」 (1967), 「The Shipbuilding Industry Promotion Act」 (1967), 「the Textile Industry Modernization Promotion Act」 (1967), 「The Electronics Industry Promotion Act」 (1969), 「The Petrochemical Industry Promotion Act」 (1970), 「The Steel Industry Promotion Act」 (1970) and 「The Non-Ferrous Metal Industry Act」 (1971); National Archives of Korea ([www.archives.go.kr](http://www.archives.go.kr))

<sup>10</sup> G. Myrdal introduced this concept [hard state] to define a state highly intervening and investing national resources discretionally in the market economy to establish and achieve the policy goals, considering a government's functions and roles in economic development.

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According to the plan, six industries including steel, petrochemical, non-ferrous metal, shipbuilding, machinery and electricity & electronics industries were selected as strategic industries. In addition, the government set out the plan to develop global-scaled industrial parks in coastal areas to achieve the goal of fostering heavy and chemical industries. The government emphasized that the second steel industrial park; the second oil refining and chemical industrial park; and a large-scaled 1 million ton-class shipyard should be constructed, and also mentioned about expansion of Free Export Zones.

### Box 3-3 | Declaration of the Heavy and Chemical Industrialization

“The government announces that it will focus on promotion of the heavy and chemical industries from now on. (Omitted) In order to achieve our export target of USD 10 billion by the early 1980s, heavy and chemical products must account for over 50% of the total export goods. To this end, the government will accelerate its efforts to foster heavy and chemical industries such as steel, shipbuilding and petrochemical industries, and reinforce those industries for exports.”

- President Park's Remarks at the Beginning of the Year Press Conference dated January 12, 1973

The government's national land development policy supported industrial park development for fostering of heavy and chemical industries in 1970s. While individual industrial parks were developed based on the economic development plans or the plans for designated areas rather than the comprehensive national land development plans in 1960s, the direction of industrial park development was decided based on the First Comprehensive National Land Development Plan (1972-81), which was a roadmap for national land development policies, in 1970s. The First Comprehensive National Land Development Plan focused on building of large-scaled industrial infrastructure for facilitation of the economic development; and expansion of SOC such as transportation, communications, water resources and energy development, in order to meet the needs of the period. The so-called growth pole development strategy, which was designed to produce maximum results with less capital, was selected as the method to achieve the goal. The contents of this Plan which were related to the industrial location policy included development of an industrial belt in the southeastern coast connecting Pohang, Ulsan, Masan and Yeosu; development of the Incheon-Pyeongtaek Pillar for distribution of industries of Seoul; and development of Gunsan, Janghang, Biyin, Yeosu and Mokpo as coastal industrial parks.

In accordance with the government policy to foster heavy and chemical industries and the direction of large-scaled industrial park development, defined in the First Comprehensive National Land Development Plan, the government steadily formed the plans to develop heavy and chemical industrial parks specialized in selected industries in coastal areas with favorable locations. Large-scaled industrial parks were developed in Ulsan, Pohang, Masan, Changwon and Yeosu in accordance with the Plan.

### Box 3-4 | Development of Large-Scaled Industrial Parks for Fostering of Heavy and Chemical Industries

“We must develop the urban plan for residential districts when designing an industrial park. We designed only the industrial district for Ulsan Industrial Park, and Ulsan City is now planning the town from the scratch.”

- President Park Chung-Hee’s Remarks during the Briefing on “Heavy and Chemical Industrialization and the Roadmap for 1980s”

Development of large-scaled industrial parks highlighted in the industrial location policies of 1970s refers to the concept of developing industrial parks combining industrial districts and residential districts, instead of the previous concept of industrial park development focused only on industrial district development. Industrial parks were considered from the perspective of national land development in the policies, and the policies aimed to develop industrial cities consisting of industrial districts, residential districts and administrative districts. Changwon Industrial Park well illustrates the concept of such policies.

Source: Oh, Won Cheol, *THE KOREA STORY: President Park Jung-Hee’s Leadership and the Korean Industrial Revolution*, Dongsuh Books, 2006.

Although the Korean government had the willingness to foster heavy and chemical industries in 1970s, the conditions of Korea were inadequate to achieve full-fledged development of the industries. Unlike the labor-intensive light industries, heavy and chemical industries required huge capital and technologies but Korea did not have enough capital and technologies to foster the industries. To deal with the situation, the government decided to establish a powerful agency and prepare institutions to foster the industries. To this end, the government established the Heavy and Chemical Industry Promotion Committee as the pan-governmental organization and organized the task force team for implementation of related programs. The government also formed the Master Plan for Heavy and Chemical Industry Promotion, which covered detailed directions of development and fostering of heavy and chemical industries, plans to develop strategic parks and financing plans; and developed institutions supporting the activities.

As mentioned above, fostering of heavy and chemical industries required infrastructure such as large-scaled plant locations, industrial water systems for plant operation and ports and roads for transportation of raw materials and products; as well as huge capital and technologies. However, there was no adequate institutional ground to support early development of large-scaled heavy and chemical industrial parks. The Ministry of Construction (now the Ministry of Land, Transport and Maritime Affairs), a government body in charge of industrial location selection and infrastructure expansion, enacted the Industrial Park Development Promotion Act in 1973, and institutionalized establishment of Industrial Park Development Corporation, which was later renamed Korea Water

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Resources Corporation, on February 1, 1974, as an organization dedicated to industrial park development.

**Figure 3-4 |** Establishment of Industrial Park Development Corporation



The pan-governmental organizations such as the Heavy and Chemical Industry Promotion Committee and the Planning Office of the Heavy and Chemical Industry Promotion Committee were established and operated, and applicable laws and a dedicated organization were prepared to provide institutional grounds. The government aggressively developed large-scaled coastal industrial parks, and especially targeted to develop specialized industries at each area by developing industrial parks specialized in major industries. The criteria for designation of industries by area included physical conditions such as ports, water systems and locations that matched with the scale of production by industries. According to the policy, Pohang (steel), Yecheon (petrochemical industry), Changwon (machinery), Geoje (shipbuilding), Gumi (electronics) and Onsan (non-ferrous metal) were designated as locations of industrial parks and development efforts were accelerated.

### Box 3-5 | Development of Gumi Industrial Park for Promotion of Electronics Industry

Gumi Industrial Park is one of the representative inland industrial parks developed from the late 1960s to 1990s. As the government shifted the focus of its economic development strategy from export-orientation to diversification of industries as part of its efforts to reduce dependence on heavy industries, develop diverse industries and overcome the challenge of lack of resources, Gumi Industrial Park was developed into a park specialized in electronics. Following the Meeting for Steering of Establishment of Gumi Industrial Park held in January 1969, the project operator for construction of the industrial park was designated in the same year.

The government selected Gumi as a location for an electronics industrial park at the Expanded Meeting for Export Promotion in 1970, and the government took a different approach to designation of Gumi. Previously, locations with favorable conditions for exports such as Pohang, Ulsan and Changwon were selected for steel, chemistry and machinery industries, respectively, but Gumi was designated for political reasons despite its limited conditions as an inland location. The Park was developed and operated in accordance with the Electronics Industry Promotion Act and the Act on Development of Export Industrial Parks enacted in 1969. In order to attract resident enterprises to Gumi Industrial Park, the government established the Electronics Industry Promotion Plan in 1974, and facilitated construction of electronics-related factories in the Park. At the same time, the government controlled construction of electronics factories in Free Export Zones and other zones.

Construction of Park 1, which was the starting point of Gumi Industrial Park, was operated by two main actors. The local industrial park which focused on the textile industry was developed by Gyeongsangbuk Province in accordance with the Act on Regional Development and Industry, and the electronics industrial park which focused on the electronics industry was developed by Korean Electronics Industrial Complex Corporation in accordance with the Act on Promotion of the Electronics Industry. Gyeongsangbuk Province later transferred its responsibilities for construction and management of the general industrial park to the Corporation, making the management rights of Gumi Industrial Park transferred to the Corporation for the purpose of efficient export support and management of the Park.

Since Gumi Industrial Park 1 was completed, three more Parks were developed, in accordance with the Park Expansion Plan. The government concluded that it would be difficult to meet the needs for locations and develop the adjacent residential areas with Gumi Park 1, so it decided to expand the Park. However, the Plan was not smoothly implemented due to financial difficulties caused by the oil shock, and Park 3 was finally completed in 1995. Park 4 was developed to accommodate digital industries and foreign businesses unlike Park 1, 2 and Park 3.

Gumi Industrial Park was developed with the strong government support. Government subsidies and incentives encouraged domestic and foreign (especially

Japanese) firms to build their factories in Gumi. In addition, land, infrastructure, water and energy were supplied at low prices, and the transportation network connecting Seoul and the southeastern coast was built. Resident enterprises were eligible for tax reductions, and various business services including employee training programs were provided.

As the government aggressively fostered the electronics industry as a strategic export industry, Gumi Industrial Park has been developed, steadily contributing to the nation's export growth. In 1971, the Park accounted for only 0.7% of the national exports, but the share increased to about 10% in 1990s, proving its role as a driver of export growth and trade surpluses, and the nation's largest inland high-tech electronics & IT industrial park.

**Figure 3-5 |** Before Development of Gumi Industrial Park and the Present



The industrial location policy of Korea in 1970s can be characterized by the government-led development of heavy and chemical industrial parks through establishment of a dedicated organization. Another characteristic is that a large-scaled coastal park, which was much larger than inland parks, was developed.<sup>11</sup> The fact that large-scaled industrial parks like Changwon Industrial Park were developed by applying the concept of a new industrial city well illustrates the significant role of industrial parks in not only industrial promotion but also national land development.

<sup>11</sup> The designated area for industry in 1970s includes the area of coastal industrial parks for promotion of heavy and chemical industries of 315.02km<sup>2</sup>. The area of inland industrial parks which are mostly local parks is just 16.81km<sup>2</sup>, which is equivalent to 5.3% of the area of coastal industrial parks. (Yoo 1998).



### Box 3-6 | Development of Changwon Industrial Park as a Comprehensive Machine Industrial Park

Changwon National Industrial Park is the coastal industrial complex dedicated to machine industry, which was developed to foster the heavy chemical industry (machine tools, industrial facility, aviation industry, etc.), the primary goal of the economic development plan.

Changwon Industrial Park was designated in April 1974 in accordance with the government policy to foster heavy and chemical industries in 1970s, with an aim to build a large-scaled machine industrial park producing materials, parts and finished goods. The initial plan was to build a comprehensive machine industrial park with the capacity of about USD 2 billion at the southern flatland of Changwon basin, and an industrial town with the projected population of about 0.2 million in the northeastern flatland and hilly land. The total area of the Park was estimated to be 26,635,000m<sup>2</sup>, of which industrial area was 18,617,000m<sup>2</sup>, and the turn-key contract of plots divided according to the master plant layout plan was selected as the method of construction. Since Changwon Park was developed in 1974, the nuclear facility, industrial machines, transportation machines and precise machine industries have been developed in the region.

Changwon Industrial Park was developed into a large-scaled industrial town by diverse stakeholders. Korea Industrial Park Development Corporation (now Korea Water Resources Corporation) built the Park for 20 years from 1973, in cooperation with related organizations for infrastructure building and major programs. Korea Railroad, Korea Electric Power Corporation, Korea Land & Housing Corporation and Gyeongsang Province managed affairs related to railroads, power, apartment building and landscaping, respectively. As Changwon Industrial Park was a large-scaled industrial town, it was impossible to develop the industrial park in a lump. Accordingly, the Park was divided into multiple parks and a phased development program was operated.

Changwon Industrial Park accommodated 1,151 workers and 44 resident enterprises in 1975, but it was expanded into a large scaled industrial complex employing over 80,000 workers and housing 2,048 businesses. As for the types of businesses accommodated, the Park advanced its production system from the existing unified machine production system into the high-tech machine and electronics production system. Currently, the Park is growing as the nation's largest machine industrial cluster.

Figure 3-6 | Changwon Industrial Park Development Plan

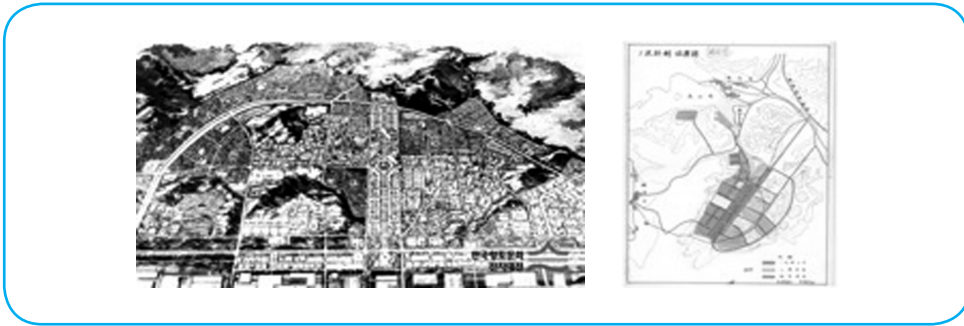


Figure 3-7 | The Early Stage of Changwon Industrial Park and the Present



Driven by intensive government support for heavy and chemical industries in 1970s and development of large-scaled industrial parks, Korea built the foundation for a more advanced industrial structure. The heavy and chemical industries recorded a remarkable growth rate of 20.9% annually in 1970s, prompted by aggressive stimulation of the government. The rate of industrialization of the heavy and chemical industries reached 51.2% in 1979, which proves that the Korean economy was prepared for full-fledged structural advancement. At the same time, the share of heavy and chemical products in exports grew from 12.8% of 1970 to 41.5% in 1980. Heavy and chemical industries have served as the basis of the Korean industry, and significantly contributed to the Korean economy to the present by driving exports as well as production and employment.

### 1.3 Balanced National Development and Industrial Location Policy in the 1980s

In 1980s, the government selected “stability, growth and balance” as the basis for its policy, which was reflected to the Fifth Five-Year Economic and Social Development Plan (1982-86)<sup>12</sup> and the Second Comprehensive National Land Development Plan (1982-1991). Such a move was a response to results of policy implementation in 1960s and 1970s, when the government focused on growth-centered efficiency. There was a growing awareness that the growth pole development approach, which focused on development of large-scaled industrial parks, broadened the regional gap in 1970s.

From the economic and industrial perspective, investments into the government-led heavy and chemical industries were adjusted in the early 1980s. It was part of the efforts to minimize side effects and aftereffects of the heavy and chemical industry promotion policy of 1970s, but it also aimed to reinforce industrial competitiveness in the mid- to long-term.<sup>13</sup> In the late 1980s, the government selected the approach to support industries by function, which was different from the selective intervention in specific industries of the past. By taking the approach, the government declared its willingness to reduce direct intervention in economic activities.

Despite the government efforts to adjust investments in the early 1970s, production activities of heavy and chemical industries were not fully activated until the mid-1980s. In addition, some heavy and chemical industrial parks suffered growth of large-scaled unused areas due to investment adjustments of the government. To deal with the situation, the government introduced the industrial location policy to distribute small- and medium-sized industrial parks in provincial areas. The government focused on allocating local industrial parks according to growth potentials of each region and the characteristics of locations such as endowed resources. The government also targeted to maintain the policy of pursuing growth and balance by developing industrial parks to which inappropriate factories in large cities were transferred.

The commitment to the balanced national development of the government in 1980s has led to industrial allocation and national industrial decentralization in various forms and methods. Such willingness was already reflected to industrial location policies of the late 1970s. In accordance with the Industrial Placement Act enacted in 1977, industrial locations in Seoul and adjacent areas were restricted, while many industrial parks were built in the development promotion zone of the Seoul Metropolitan Area from the late 1970s.<sup>14</sup> In particular, Banwol Special Zone (Banwol-Siwha Industrial Park) and Namdong Industrial

<sup>12</sup> Since the Fifth Development Plan was launched, the government added aspects related to social development to the Plan, emphasizing the significance of the qualitative growth.

<sup>13</sup> The Compilation Committee of 60-year History of Korean Economy, *The Korean Economy: Six Decades of Growth Development*, Korea Development Institute, 2010.

<sup>14</sup> The Seoul Metropolitan Area is classified into the overpopulated constraint area, the growth management area and the nature preservation area for appropriate allocation of population and industry in accordance with the Capital Region Readjustment Planning Act.

Park were developed to decentralize population and industry of the Seoul Metropolitan Area. In addition, various legal grounds encouraging decentralization of industrial parks were prepared. First, the Small and Medium Sized Business Act was enacted in 1982 to promote industrial locations, and the Capital Region Readjustment Planning Act was enacted in the same year to strictly regulate industrial locations in the Seoul Metropolitan Area.

### Box 3-7 | Development of Banwol Industrial Park (Banwol Special Zones) for Decentralization of Population and Industry of Seoul Metropolitan Area

Banwol Industrial Park (Banwol Special Zone) is a representative example of Korea's industrial location policy from the late 1970s to 1980s. The basis of the industrial location policy during the period was the balanced national development. Accordingly, concentration of population and industry in Seoul had to be controlled, and Banwol Industrial Park (Banwol Special Zone) was designated in 1976 in accordance with the Industrial Sites and Development Act, as part of the efforts to decentralize industry.

Development of Banwol Special Zone aimed to control and ease concentration of population and industry in Seoul and the Seoul Metropolitan Area, and it was planned to develop the new industrial town with an industrial park with the area of 3.3km<sup>2</sup>. The development plan included development of a new industrial town with a focus on industry, which is a self-supporting city equipped with the tertiary industrial facilities based on the secondary industry as the main pillar. It was also planned to develop the town with the residential areas completed with infrastructure and social facilities.

However, the government concluded that a new industrial park had to be constructed to develop Ansan where Banwol Special Zone was located into a self-supporting city, and the needs for a new industrial park grew as inappropriate plants had to be transferred from Seoul. The government reclaimed the public water and salt ponds in the west to Banwol District, and completed the site for Siwha Industrial Park with the total area of approximately 16km<sup>2</sup>. Siwha Industrial Park was developed as a park expanded from Banwol Industrial Park, and the site was designated by changing the scope of projected sites for Banwol Industrial Park development in September 1986.



Banwol-Siwha Industrial Park had 99,536 workers and 1,776 resident enterprises in 1970 when it launched operation, and the numbers of workers and resident enterprises grew to 195,635 and 12,548, respectively, in 2009. The amounts of production and exports significantly grew from KRW 4,874 billion and USD 19.35 million of 1970 to KRW 43,110.6 billion and USD 6,359 million in 2009. The site was a

thinly populated agricultural and fishing area before development of the Park, but it is now fortifying its status as the nation's largest parts and material industrial park connecting SMEs located adjacent and producing IT, LCD, semiconductor, PCB, car components, electric and electronic parts.

**Figure 3-8 |** Banwol Industrial Park in the 1970s and Small and Medium Enterprises in the Park



In the late 1980s, new industrial parks were developed in the central area and the southwestern area, where industrial parks had not been actively developed previously. Large-scaled industrial parks were developed in Myeongji-Noksan, Gunjang, Gunsan and Daebul. The total area of industrial parks designated in the southwestern area between 1981 and 1989 reached 53,894,000m<sup>2</sup>, which was 57.7% of the total area of designated parks of the nation.<sup>15</sup> However, some parks were developed hastily, solely concerned with developing less developed areas. These parks remained vacant for a long time in 1990s.

**Figure 3-9 |** Gunjang Industrial Park and Daebul Industrial Park



<sup>15</sup> Kim, Yong-Ung, *Regional Development Policy*, Bobmunsa, 1999.

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One of material characteristics in Korea's industrial location policy implementation in 1980s was development of Agricultural Industrial Parks. The Project for Saemaeul Factory Establishment<sup>16</sup> has been operated in agricultural areas since 1970s as a drive to increase non-agricultural income by using unused labor and abundant agricultural goods as raw materials. The Project was actively operated as the Rule on Agricultural Processed Goods Development was enacted in 1973.

**Figure 3-10 |** President's Inspection of Agricultural Industrial Park (1981)



However, there were limitations in increasing the income of agricultural areas only by operating the Project in the late 1970s, due to the small scale of businesses and the agricultural market opening. To overcome such limitations, the government has made efforts to increase non-agricultural income since the early 1980s. The government established the Non-Agricultural Income Source Development Planning Team in September 1981, and the Act on Agricultural and Fishery Income Source Development Promotion (No. 3689) was enacted in 1983, which served as the legal ground for development of special agricultural and fishery industrial parks, Agricultural Industrial Parks and leisure resources of agricultural and fishing areas.

The government has operated the programs to develop Agricultural Industrial Parks, in order to build small-scaled industrial parks in agricultural areas, attract SMEs and provide resident enterprises with the factory sites at low prices. The programs for income growth and advancement of income structure of agricultural and fishing areas were expanded at the national level, based on the comprehensive government support including tax and financial benefits for resident enterprises and streamlined administrative procedures. Agricultural Industrial Parks have been intensively developed since the pilot project was operated in 1984. A total of 217 Agricultural Industrial Parks were designated in 1980s.

<sup>16</sup> Saemaeul Factory Establishment Project was the program operated mainly by the Ministry of Commerce and Industry and the Headquarters for Promotion of Industrialization of Agricultural Areas from 1973 to 1983. The program aimed to provide job opportunities by attracting labor-intensive SMEs to agricultural areas, but there were limitations to achieve the initially planned goal as small businesses were scattered in agricultural areas.

The balanced national development was selected as the top priority of the industrial location policy of 1980s. Accordingly, the policy was implemented for national land management, and businesses were encouraged to be located in local areas as local industrial parks were developed in a large scale. Overall, industrial locations of large cities including the Seoul Metropolitan Area were controlled, while decentralization of industrial parks was actively pursued.

#### 1.4 Advancement of Industrial Structure and Industrial Parks in the 1990s

In 1990s, the paradigm of the industrial structure was shifted into the knowledge-based economy, affecting the industrial location policy. In relation to development of the manufacturing sector, significance of the technology development was emphasized. Amid the full-scaled market opening, Korea's manufacturing sector entered into the era of globalization.<sup>17</sup> Instead of the government, businesses were taking a leading role in developing industry, and the government policy targeted to improve competitiveness of industry and businesses.

Accordingly, the industrial location policy of Korea in 1990s focused on responses to diverse location needs of industries and businesses; and development of parks equipped with various service functions including R&D, production, logistics and welfare. In addition, the policy also focused on improving conditions for high-tech industries and venture businesses located in urban areas. Various types of small- and medium-sized industrial parks were developed, and the efforts to develop SME industrial parks, parks specified for lease and apartment-type factories (flatted factories) were made in a full scale.

**Figure 3-11 |** Deadeok Science Park and Gwangju High-Tech Science Industrial Park



<sup>17</sup> The Compilation Committee of 60-year History of Korean Economy, *The Korean Economy: Six Decades of Growth Development*, Korea Development Institute, 2010.



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In 1990s, the central government and local governments actively developed tech innovation-oriented industrial parks for promotion of high-tech and IT industries, amid tech innovations and informatization. Gwangju High-Tech Science Industrial Park was designated, and six local Science Industrial Parks were developed in Busan, Daejeon, Daegu, Jeonju, Gangneung and Ochang.<sup>18</sup>

The industrial location policy pursuing the balanced national development of 1980s continued in 1990s. Accordingly, efforts to decentralize industries concentrated in the Seoul Metropolitan Area and to develop industrial parks in less developed areas continued. A park located in the southeastern area of the country advanced its industrial structure, and new industrial districts were developed in the central area and the southwestern area. Small- and medium-sized industrial parks were continuously developed to promote development of less developed areas.

Targeting to complete the framework for improvement of competitiveness of industrial parks in 1990s, the government integrated and abolished multiple applicable laws to ease the burdens and streamline the procedures of factory establishment, development of industrial parks and the sales system of the industrial parks. As a result, the Act on Industrial Sites and Development (1990) and The Act on Industrial Placement and Factory Construction (later, Industrial Cluster Placement and Factory Establishment Act) were enacted in 1990 as the legal framework for Korea's industrial location policy.

## 1.5 Diversification of Industrial Locations and Improvement of Competitiveness of Industrial Parks in 2000s

From the mid-1990s to 2000s, high-tech and knowledge-based industries including IT emerged as the key industries of Korea. Korea's manufacturing sector faced a challenge of overcoming the bi-polarization of industry. In addition, development and promotion of new growth engines to sustain advancement of the Korea's industrial structure emerged as a critical issue.<sup>19</sup>

Meanwhile, sustainable development also emerged as a hot issue, in relation to responses to global crisis caused by global warming and environmental problems. The recent industrial policy and industrial location policy of Korea have pursued both green growth and environment-friendly industrial park development.

As various issues emerged in 2000s, it was required to make a more comprehensive and flexible industrial location policy. In particular, new types of industrial parks were highlighted as there were growing needs for parks providing various functions including production,

<sup>18</sup> In accordance with the master plan for development of the national techno-belt for the 21st century of the Ministry of Science and Technology (1989), the direction of development of science industrial park was set, which included development plans of regional hub parks in Gwangju, Jeonju, Busan, Daegu and Gangneung.

<sup>19</sup> The Compilation Committee of 60-year History of Korean Economy, *The Korean Economy: Six Decades of Growth Development*, Korea Development Institute, 2010.



R&D support, business services and residential services amid emergence of knowledge-based industries, convergences and urbanization. The government provided various support measures and developed locations to serve the advanced industrial structure, and various types of industrial parks including high-tech and medical cluster, Foreign Investment Zones and Free Economic Zones increased and related systems and supports were expanded. As easy access to information and services necessary for management activities and pleasant residential conditions became more important than physical infrastructure, industrial parks were developed in a way to cater to such needs.

Urban High-Tech Industrial Parks allowing small-scaled industrial locations in urban areas were introduced, and National Rental Industrial Parks allowing operation of small businesses at low costs were also adopted. In addition, industrial parks specified for lease, which had served only foreign invested companies, began accepting domestic businesses, helping high-tech start-ups without capital; expanding the public scope of industrial locations and shifting the paradigm of the industrial location policy.

In addition, the issue of streamlining the procedures and reducing the development period was solved. The act on special cases was enacted to streamline approvals for industrial park development, and centers supporting industrial park development were established at cities and provinces to support industrial parks in the course of acquiring approvals for development.

**Figure 3-12 |** Jeju Science Park and Apartment-type Factory (Knowledge Industry Center) in the Park



### Box 3-8 | Full-Fledged Development and Increase of Supply of Apartment-Type Factories

One of the policy changes made in 1990s in the history of Korea's industrial park development was that apartment-type factories (flatted factories) were supplied in a full scale. Apartment-type factories refer to the multi-storied buildings accommodating manufacturing businesses, knowledge businesses, ICT businesses and supporting facilities. Apartment-type factories are effective in a sense that they can solve the problem of industrial location shortage for SMEs in urban areas through advanced land use; and that they can provide SMEs with the opportunity to have their own factories.

As many positive effects of the apartment-type factories, including stable management conditions and competitiveness and productivity improved through the economy of scale, were expected, related laws and regulations were enacted and apartment-type factories were developed from 1989. In addition, the apartment-type factories were excluded from the Total Industrial Site Volume Control System (TISVCS)<sup>20</sup> in capital region in 1996, and the regulations on private businesses were eased, leading to full-scale development of apartment-type factories. Seoul Digital Industrial Park (Guro Industrial Park) is one of the representative examples where low-priced apartment-type factories were intensively constructed and the structure was advanced into the high-tech and knowledge industries including IT and software based on the park advancement plan.

In addition to such changes in industrial location policies, the government is also focusing on improving competitiveness of existing industrial parks. As key National Industrial Parks developed in 1960s and 1970s are deteriorated, the government is implementing various policies to support restructuring of the parks. One of the measures is to regenerate the industrial parks developed in 1960s and improve competitiveness through structuring advancement. In addition, the government is fostering industrial clusters with reinforced R&D and tech competitiveness, instead of traditional industrial parks with simple production functions. The government is also operating various types of industrial park management and operation systems and various support measures including development of eco-industrial parks pursuing both development and environmental preservation.

<sup>20</sup> Under the TISVCS, the government sets the limit on the total industrial site volume every three years to control population concentration in the capital region. The TISVCS is based on the Seoul Metropolitan Area Readjustment Planning Act. Following the law, the TISVCS mandates new constructions and expansion of factories, and land use changes are allowed only within the limit of the total industrial site volume allocated by the Ministry of Construction and Transportation (MOCT) every three years.

## 2. Types and Status of Industrial Parks

### 2.1 Types of Industrial Parks

Korea's industrial parks have been developed in various forms according to the sponsorship, the main actor of development, or purposes of development. Industrial parks may be classified into the government-owned industrial parks and the private-owned industrial parks according to the main actor of development.

The laws of Korea,<sup>21</sup> which are applicable to industrial park development, have categorized industrial parks into National Industrial Parks, Local Industrial Parks, Urban High-Tech Industrial Parks and Agricultural Industrial Parks.

**Table 3-2 |** Types of Industrial Parks

Types	Designated Authority Holder	Purpose of Designation	Target Region
National Industrial Parks	Minister of Land, Transport and Maritime Affairs	To promote the nation's key industries and high technology industries, etc. or to develop underdeveloped areas requiring promotion of development or areas where planned industrial parks are stretched over two or more of Special Metropolitan City and Metropolitan Cities	Underdeveloped regions requiring promotion of development, and regions with infrastructure advantages for the high-tech industry
Local Industrial Parks	Heads of Regional Local Governments	To promote appropriate decentralization of industries and to activate of local economies	A region requiring balanced development (at the city and provincial level)
Urban High-Tech Industrial Parks	Heads of Regional Local Governments	To foster and promote development of the knowledge industry, the cultural industry, the information and communications industry and other high-tech industries	Urban regions with advantages for fostering the high-tech industry
Agricultural Industrial Parks	Mayors or Governors of Gun	To attract and promote industries for increasing income of farmers/fishermen in agricultural and fishing areas prescribed by Presidential Decree	A region having an advantageous location in cities and counties

<sup>21</sup> Industrial Sites and Development Act

Industrial parks were categorized as the above by comprehensively considering the main actor of development and the purpose of development. As for the main actor of development, National Industrial Parks are developed by the Minister of Land, Transport and Maritime Affairs; Local Industrial Parks and Urban High-Tech Industrial Parks are developed by Governors and Mayors (Governors of Guns and Gus included); and Agricultural Industrial Parks are developed by Mayors and Governors of Guns and Gus.

In terms of the purpose of development, National Industrial Parks shall be designated and developed to foster the nation’s key industries and high-tech industries, and target less developed areas requiring stimulation of developed or areas stretched to two or more Metropolitan Cities or Provinces. Local Industrial Parks shall be developed to facilitate appropriate national distribution of industries and activate local economies. Urban High-Tech Industrial Parks shall be designated in urban areas as the parks aim to facilitate fostering and development of knowledge, culture, ICT and other high-tech industries. Agricultural Industrial Parks shall be designated to attract and foster the industries that will increase income levels of agricultural and fishing villages.

In addition to the general types of industrial parks, there are planned locations that are established for special purposes. Industrial Zones that are not included in industrial parks but developed to increase the density of factories; and SME Parks which are designed to promote locations of SMEs are included in the planned locations. Foreign Investment Zones for facilitation of foreign investments; Free Trade Zones that are developed to induce free trades of goods and products by reinforcing logistics functions of industrial parks; and Free Economic Zones that are developed to significantly improve living and investment conditions for foreigners are also classified as planned locations. There are more types of planned locations, including Techno Parks, also dubbed Industrial Parks, which are developed to stimulate local innovations by facilitating cooperation among industry, academia and research.

**Table 3-3 | Other Types of Industrial Parks**

Type	Designation Authority Holder	Purpose of Designation	Target Region
Free Trade Zone	Minister of Knowledge Economy	Attract foreign investment, promote trade and promote local development	A region surrounding a harbor, an airport and an existing industrial park
Foreign Investment District	Mayors and governors of provinces	Promote attraction of foreign investment	An industrial park and a region where foreign investors wish to invest

Type	Designation Authority Holder	Purpose of Designation	Target Region
Free Economic Zone	Minister of Knowledge Economy	Improve business and living conditions for foreign investors	A region having a high possibility of foreign investment and settlement of foreigners
Industrial Technology Park	Minister of Knowledge Economy	Joint technology development and activation of local economies through clustering industry, academy and institute	A region having a high possibility of clustering and connection of industry, university and institute

## 2.2 Status of Industrial Parks

In general, distribution of economic activities, especially industrial activities, is determined by various factors including natural conditions, government policies and changes in economic conditions. Distribution of Korea's industry has been determined by changes of the government policy amid rapid industrialization and restructuring.<sup>22</sup>

The Korea government made the industrial policies to promote or intensively support specific industries in accordance with the economic development strategy, and industrial parks were developed at the ideal locations for the industries. That is why Korea's industrial parks and key manufacturing sectors have been placed and developed mainly in selected areas.

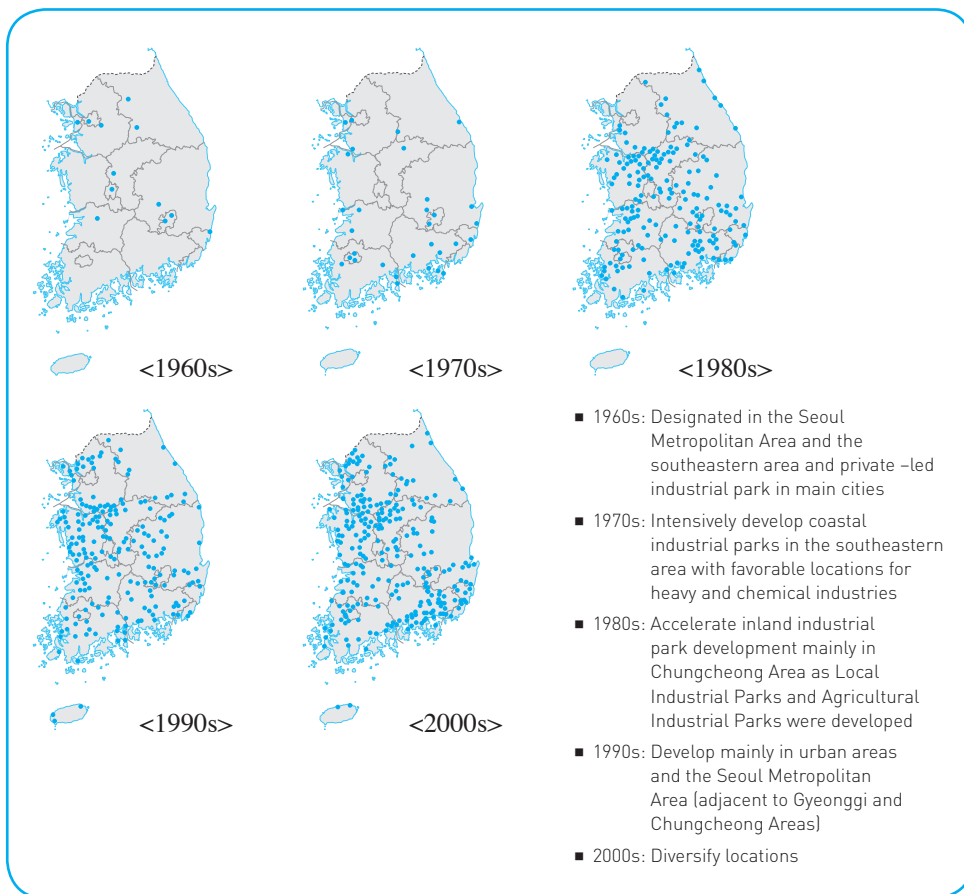
In 1960s, industrial parks were designated in the areas with easy access to labor and abundant resources in accordance with the export-oriented light industry promotion policy. The parks designated and developed in accordance with the industrial location policy of 1960s were concentrated in the Seoul Metropolitan Area and the southeastern area with favorable conditions. Approximately 96% of the parks were located in two areas (18.6% in the Seoul Metropolitan Area and 77.6% in the Southeastern Area). The industrial parks designated in the southeastern area had not been fully developed until 1970s. The government adopted the policy to foster heavy and chemical industries, in order to promote six industries including steel, petrochemical, non-ferrous metal, shipbuilding, machine and electricity & electronics industries, in 1970s. The government developed industrial parks at ideal locations for each industry in a full scale, leading to development of coastal industrial parks in the southeastern area (Ulsan, Changwon, Pohang and Yeosu) of Korea.

Since 1980s, industrial parks have been developed for the purpose of the balanced national development, rather than the government strategy for industrialization. The

<sup>22</sup> The Compilation Committee of 60-year History of Korean Economy, *The Korean Economy: Six Decades of Growth Development IV : Land & Environment*, Korea Development Institute. 2010.

industry promotion policy focusing on economic efficiency broadened the gap between the Seoul Metropolitan Area and provincial areas for 20 years, and small- and medium-sized industrial parks were developed in each area to promote local industries. From 1990s, more various locations and methods were selected for industrial park development. Most notably, Korea has highlighted the significance of technology development and innovations with a focus on high-tech industries and knowledge-based industries since 1997 when the Asian financial crisis hit the country. The government shifted the focus of its industrial policy into strategic local industries and improvement of industrial conditions, and industrial parks have been diversified since then.

**Figure 3-13 | Korea's Industrial Parks by Decade**



As various types of industrial parks were developed according to the industrial location policies of each period, a total of 901 industrial parks were designated as of the end of 2010. The total designated area reaches 1,335km<sup>2</sup>, of which industrial locations for plant construction accounts for about 44.4%.

**Table 3-4 | Status of Industrial Parks by Type (As of December 31, 2010)**(Unit: ea, 1,000m<sup>2</sup>)

Items	Number of Parks	Designated Area	Area of Industrial Facilities
National Industrial Park	40	802,346	263,996
Local Industrial Park	434	465,315	277,084
Urban High-Tech Park	6	745	325
Agricultural Industrial Park	421	67,201	51,912
Total	901	1,335,607	593,317

Source: Ministry of Knowledge Economy &amp; KICOX, Status Statistics on Industrial Parks 2010 4Q, 2011.

A total of 58,761 companies are being operated, and about 1.58 million employees are working at industrial parks. The total production amount and the export amount of industrial parks reach about KRW 844 trillion and USD 343.1 billion, respectively.

**Table 3-5 | Operation Status of Industrial Parks by Type (As of December 31, 2010)**

(Unit: number of firm, person, KRW 0.1billion, US\$1million)

Items	Companies Operated	Workers	Production	Exports
National Industrial Park	36,829	895,950	5,379,633	214,225
Local Industrial Park	16,807	550,211	2,624,990	117,28
Urban High-Tech Park	111	1,001	1,274	-
Agricultural Industrial Park	5,014	129,806	437,613	11,587
Total	58,761	1,576,968	8,443,510	343,101

Source: Ministry of Knowledge Economy &amp; KICOX, Status Statistics on Industrial Parks 2010 4Q, 2011.

Industrial parks are categorized into National Industrial Parks, Local Industrial Parks, Urban High-Tech Industrial Parks and Agricultural Industrial Parks by purpose of development and the main actor of development. National Industrial Parks take the largest portion in terms of designated areas, the number of businesses accommodated, employment, production and exports, accounting for 60.7% of the total designated area, 62.7% of the

businesses operated and 56.8% of employment, as the Parks were designated to foster the nation's key industries at the initial stage of development.

As specific industries were intensively fostered and large-scaled National Industrial Parks were developed in the past in a drive to build the foundation for national industrialization, those industries currently account for large portions of the business types accommodated in the industrial parks. As of the end of 2010, five top industries accommodated in National Industrial Parks include petrochemical, steel, machine, electricity & electronics and transportation equipment industries.

**Table 3-6 | Status of Type of Business in Industrial Park (As of December 31, 2010)**

(Unit: number of firm, person, KRW 0.1billion, US\$1million)

Items	Number of Businesses Operated	Number of Employees	Production	Exports
Foods & Beverages	456 (1.2)	13,473 (1.6)	6,376 (1.4)	32 (0.2)
Textile & Apparel	1,029 (2.8)	33,983 (4.0)	6,603 (1.4)	158 (0.9)
Lumber & Paper	1,108 (3.0)	22,095 (2.6)	5,962 (1.3)	44 (0.3)
Petrochemical	2,729 (7.3)	97,117 (11.3)	165,158 (35.8)	6,313 (37.3)
Non-Ferrous Metal	321 (0.9)	14,424 (1.7)	5,056 (1.1)	114 (0.7)
Steel	1,377 (3.7)	33,927 (3.9)	32,169 (7.0)	1,026 (6.1)
Machine	13,353 (35.8)	205,510 (23.9)	73,350 (15.9)	2,048 (12.1)
Electricity & Electronics	6,236 (16.7)	179,721 (20.9)	84,385 (18.3)	3,621 (21.4)
Transportation Equipment	2,007 (5.4)	160,639 (18.7)	79,384 (17.2)	3,561 (21.0)
Others	706 (1.9)	9,574 (1.1)	2,524 (0.5)	18 (0.1)
Non-Manufacturing	7,956 (21.3)	88,754 (10.3)		
Total	37,278 (100.0)	859,217 (100.0)	460,966 (100.0)	16,936 (100.0)

Source: KICOX, National Industrial Park Trends for December 2010, 2011.

### 3. Government Support System for Industrial Parks

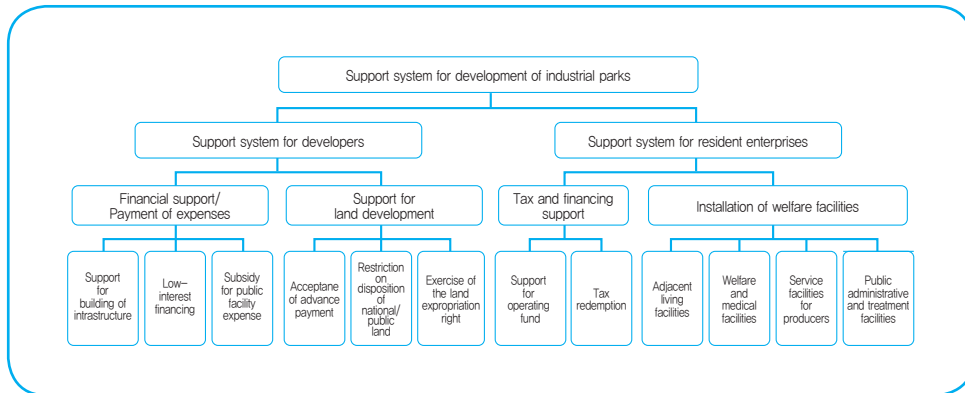
As industrial park development requires huge costs and building of infrastructure, Korea has adopted various support systems to facilitate construction and activation of industrial parks. In addition, when an industrial park is developed, various benefits are provided by the government as development of an industrial park creates significant ripple effects in regional economy. In general, the benefits provided by the government include the support system for developers of industrial parks and the firms which move to the industrial parks.



The support system for developers is intended to partially support development cost of industrial parks and to apply relevant laws and systems to enable easy acquisition of land for development of industrial parks. The support system for resident enterprises includes tax benefits at the time of land acquisition and low-interest loan arrangement for land purchase.

The above government policies played a significant role in activating industrial parks.

**Figure 3-14 | Support Systems for Development of Industrial Parks**



In General, it is a rule that project operators shall be responsible for expenses arising from development of industrial parks and recover the costs by selling the developed parks. However, as the industrial park development project involves a significant portion of the public facility costs for building roads and industrial water and sewage system, developers cannot develop industrial parks in locations with less favorable conditions.

Accordingly, the government is partially paying the development costs. Items of expenses and ratios thereof which the state or local governments may subsidize are summarized in the below table. In addition to this, the land acquisition costs of Agricultural Industrial Parks are also subsidized.

### Box 3-9 | Government Subsidization for Development of Industrial Parks

- Construction expenses for main roads and green facilities in an industrial park ;
- Construction expenses for water supply facilities, sewerage, and waste water terminal treatment facilities;
- Expenses for relocation projects;
- Land purchase expenses for an industrial park developed for the purpose of leasing land, facilities, etc. and construction expenses

- For parks and common ditches;
- Land purchase expenses for construction of apartment-type factories (urban factories or flatted factories);
- Site development expenses for creation of agricultural and industrial parks, infrastructure facilities expenses and land purchase;
- Expenses for access roads, electric power, communications facilities, etc. ;
- Expenses for research on cultural properties;
- Where deemed especially necessary for development of a backward area; and
- Where a project operator wishes to lease land within an industrial park which is neither exploited nor parceled out

Concerning infrastructure facilities, which are necessary for efficient development of industrial parks, (such as ports, roads, water supply facilities, railroads, communications and electrical facilities), the state, local governments, or the suppliers of such facilities first shall provide assistance.

In order to alleviate financial burdens of developers, the government is operating a financial assistance system. Acquisition tax, registration tax and property tax are exempted for the land purchased by developers of industrial parks. The state or local governments may provide financial assistance for efficient development of industrial parks, attraction of enterprises to industrial parks, and promotion of the land lease business to small and medium enterprises for industrial use. When necessary for fast execution of the industrial park development project, the state and local governments may reduce or exempt the expenses.

There are various supporting systems for resident enterprises of industrial park, intended to alleviate investment burdens of the firms and attract them to the industrial parks. Tax benefits are the most common form of support. The detailed tax benefits for resident enterprises of industrial parks are defined in the Restriction of Special Taxation Act and the Local Tax Act. The main contents of the laws include 100% exemption of registration tax and acquisition tax, and 50% reduction of property tax.

The following financial assistance is provided to resident enterprises of industrial parks.

### Box 3-10 | Government Subsidization for Resident Enterprises of Industrial Parks

- Financial assistance in accordance with applicable laws regarding development of the national key industries, technology development, quality improvement, the high-tech industry.
- Subsidization of the capital expenditure and the operating expenses of resident enterprises of Agricultural Industrial Parks.
- Support for small and medium enterprises in accordance with the Act on Support for Small and Medium Enterprises Establishment, the Small and Medium Enterprises Promotion Act, and the Act on Facilitation of Purchase of Small and Medium Enterprises-Manufactured Products and Supports for Development of Their Markets.
- Low-interest financing for the projects of resident enterprises in the general and urban high-tech industrial parks.

A management agency may operate support services such as provision of market information, improvement of energy efficiency, supply of energy, promotion of labor relations and vocational training, for the benefit of resident enterprises. In addition, a lot of welfare facilities are required to support resident enterprises. Major facilities include service facilities for producers like public administration institutions, management offices, banks, welfare facilities like labor welfare halls, medical facilities like hospitals and living facilities like supermarkets and restaurants. Those welfare facilities are installed by the management agency, local governments and private suppliers.



### Establishment and Major Functions of Industrial Park Management Organizations

1. Implementation of Industry Promotion Policies and Development of Major Industrial Parks
2. Industrial Park Development for Fostering of Specific Industries and Establishment of a Management Organization
3. Establishment and Roles of Korea Industrial Complex Corporation (KICOX)
4. Major Programs of KICOX

# Establishment and Major Functions of Industrial Park Management Organizations

## 1. Implementation of Industry Promotion Policies and Development of Major Industrial Parks

All development activities of the manufacturing sector in 1960s and 1970s were closely related to the export growth. Under the slogan of “export all industries,” industrial development was pursued. In 1960s, apparel, shoe and electronic assembly industries drove export growth as key industries of the nation, and heavy and chemical industries, which drove the remarkable growth of the Korean economy, were also promoted to achieve the export target of USD 10 billion.

### Box 4-1 | A Memoir on the ‘Heavy and Chemical Industrialization Declaration’ of 1973

“I was appointed as the Director General of Industry Division in charge of promoting chemical and light industries on June 30, 1964. I was specially assigned to adopt export-oriented systems to all industries of the nation.

(1) Adoption of the export-oriented systems means supporting export companies making profits and gaining reputations through administrative measures. [Omitted]

(3) Export industrial parks shall be developed, and low-interest loans with the long repayment cycle shall be provided to businesses.

(5) The seven-year export plan shall be developed and implemented for each business type and export company.

- Oh, Won-Cheol, Second Economic Secretariat under the President Park Chung-Hee in 1970s

Source: Oh, Won-Cheol, *THE KOREA STORY: President Park Jung-Hee’s Leadership and the Korean Industrial Revolution*, Dongsuh Books, 2006.

Such a remarkable growth of the manufacturing sector in 1960s and 1970s was backed by development of industrial parks. In order to intensively foster export industries, export-only industrial parks were developed in Seoul and Gumi, and promotion of heavy and chemical industries was accelerated as industrial parks were developed in Ulsan and Changwon. Industry promotion was closely related with industrial park development, and after the development, the role of management corporations was reinforced their functions to intensively manage and foster the parks. Korea Export Industrial Corporation developed and managed the parks at first, and became the nation's first corporation dedicated to management of industrial parks, managing Guro Industrial Park and parks in Bupyeong and Juan. Southeast Regional Industrial Complex Corporation which began operation by managing Changwon Industrial Park and later managed parks located in the southeastern area; and Gumi Export Industrial Complex Corporation, which shared its history with the electronics industry, fully supported the government policy to develop and intensively manage parks for promotion of specific industries. In addition, Banwol Industrial Complex Corporation which was established in 1977 to manage Banwol, Siwha and Asan Industrial Parks and Southwest Regional Industrial Corporation established in 1979 supported activation and development of parks specialized by region and type of business, and the Corporations were merged into KICOX in 1997, along with the above-mentioned three Corporations.

## **2. Industrial Park Development for Fostering of Specific Industries and Establishment of a Management Organization**

### **2.1 Establishment of Korea Export Industrial Estates Corporation for Fostering Export Industries**

#### **2.1.1 Background**

Korea Export Industrial Estates Corporation was established in accordance with the Act on Development of Export Industrial Parks on August 12, 1964, and has developed and managed Korea Export Industrial Park. As the Export Industry Promotion Committee (1963), established for intensive fostering of export industries, proposed development of export-only industrial parks, the need for establishment of the management corporation to serve as a communication channel with the government was raised. Establishment of Korea Export Industrial Estates Corporation as a private organization was steered,<sup>23</sup> but large-scaled park development was too demanding for a private organization. The Corporation was not able to operate the project to build a large-scaled industrial park, so it was established as an incorporated association in August 1964, following dissolution in the same year. The Corporation issued stocks to attract shareholders for financing. The total

<sup>23</sup> Korea Export Industrial Estates Corporation, *History of the Korea Export Industrial Estates Corporation: Three Decades*, 1994. p.149.

cost of establishment was KRW 51.44 million at point of establishment, and over 80% of the capital was borrowed (government subsidies and borrowings from the Bank of Korea), and equity investments accounted for 19.5%. The expenditures consisted of 28.9% of the land acquisition costs, 24.2% of the land preparation costs, 21.6% of the infrastructure building costs and other costs.

The capital and the assets were not huge when the Corporation was established, and financing for maintenance and operation of the Corporation was enabled through increase of earned surpluses such as equity investments, granting of government subsidies, disposal of factory sites, collection of warehousing fees and collection of management fees.

Meanwhile, Incheon City (Bupyeong) which was selected as a candidate for the first Export Industrial Park with Guro-dong, Seoul, requested that Bupyeong be designated as an individual industrial park to the government after Guro-dong was selected as the projected site for development of Export Industrial Park. Establishment of Incheon Export Industrial Complex Corporation as an organization dedicated to industrial park development was steered in 1965. The so-called Bupyeong Industrial Park was developed in 1969, but it was merged with Korea Export Industrial Park and renamed as Korean Export Industrial Park 4 in 1971. Accordingly, Incheon Export Industrial Complex Corporation was also merged with Korea Export Industrial Estates Corporation located in Seoul.

**Figure 4-1 |** A Signboard of Korea Export Industrial Estate Corporation



### **2.1.2 Assessment on Major Services and Roles**

At the initial stage, the Corporation played important roles in development and management of Export Industrial Parks. As the Act on Development of Export Industrial Parks was integrated with the Industrial Park Management Act, the Corporation shifted the focus of services from development to management of Export Industrial Parks. However, the Corporation still managed affairs related to development, while expanding the scope of management services supporting unused land development in parks and installation of apartment-type factories (flatted factories) for resident enterprises. The services of the



Corporation changed in accordance with the Industrial Park Management Act and the previous services of the Corporation are compared as follows:<sup>24</sup>

**Table 4-1 | Responsibilities of Korea Export Industrial Estates Corporation**

Responsibilities of Development Corporation	Responsibilities of Management Corporation
1. Development and operation of industrial parks for export industries	1. Development and operation of industrial parks <sup>25</sup>
2. Attraction of export businesses to industrial parks	2. Attraction of resident enterprises and support organizations
3. Attraction and settlement of businesses run by overseas Koreans to industrial parks	3. Support for plant construction, production and exports of resident enterprises
4. Installation and operation of common service facilities in the parks	4. Researches on overseas market entries and exploration of overseas markets to support export businesses
5. Loan brokerage for resident enterprises	5. Maintenance of common facilities of the parks
6. Researches for overseas market entries	6. Installation and operation of common service facilities in the parks
7. Additional services necessary for fulfillment of the above responsibilities	7. Education for capability development of employers and employees of businesses
	8. Additional services necessary for fulfillment of the above responsibilities

Source: Korea Export Industrial Estates Corporation, History of the Korea Export Industrial Estates Corporation: Three Decades, 1994.

The Corporation maintained and managed common facilities while operating small-scaled development projects. At the initial stage, the Corporation collected fees from resident enterprises to finance maintenance of common facilities, which included roads, drainage, environmental purification systems and telecommunications systems. The Corporation signed contracts with resident enterprises; assessed eligibility of candidates; and held the authority to terminate the contract if resident enterprises violated the terms of contracts. When resident enterprises failed to use the land for the purpose of the contract, the Corporation withdrew and sold the land. The Corporation collected the management fees,<sup>26</sup> which was a certain percentage of the prices of the land, from resident enterprises,

<sup>24</sup> Korea Export Industrial Estates Corporation, History of the Korea Export Industrial Estates Corporation: Three Decades, 1994. p.407

<sup>25</sup> Still fulfilling other responsibilities for park development

<sup>26</sup> Resident enterprises paid 7% of the total sales prices as management fees, and the rate gradually decreased until the fees were finally abolished.

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but the management fee system was abolished later as roles of the Corporation as a public organization were reinforced. Instead, the Corporation operated businesses such as industrial water supply through water purification facility operation, lease of facilities and operation of bonded warehouses.

The Corporation managed parks and supported resident enterprises, and contributed to successful stabilization of parks through development of parks, attraction of Korean-Japanese entrepreneurs and support for businesses of overseas Koreans. In addition, the Corporation improved laws and regulations by immediately submitting requests to related government bodies when it had difficulties and supported early stabilization, factories establishment and production activities of resident enterprises.

Since establishment, the Corporation has served as an export and import agent in accordance with Article 3, the Law of International Trade, in order to help resident enterprises which were not familiar to the export and import management. From 1968 to 1975, the Corporation recorded the service amount of USD 2,250,150 by serving as an agent. In addition, the Corporation supported exports by inviting foreign buyers to expand the export channels for resident enterprises, and provided resident enterprises with the global market information. In 1968, the Corporation hosted the first trade fair to promote Korea's remarkable economic development, and provided resident enterprises with the opportunity to develop overseas sales channels.

#### Box 4-2 | PR Activities of Korea Export Industrial Estates Corporation

The Corporation published and distributed the PR materials in Korean and English which featured the history of industrial park and the status of resident enterprises to actively attract resident enterprises and promote the Corporation. In addition, the Corporation hosted the first trade fair to globally promote Korea's industrial development and economic growth. The products made in Korea were categorized and exhibited at the trade fair, which was held for 40 days from September 9 to October 20, 1968. The fair was a great success. Over 1,800 foreign buyers were attracted and 2 million visitors participated in the fair with the transaction amount of USD 21 million.

Source: Korea Export Industrial Estates Corporation, History of the Korea Export Industrial Estates Corporation: Three Decades, 1994.

Thanks to the efforts, the Corporation played a significant role in activating light industries and growing exports. Main export items were textiles and apparel, and over 90% of the produced goods was exported. In 1971, the export amount of a single industrial park exceeded USD 0.1 billion, accounting for 10% of the total national exports. The Corporation also served as a strong supporter of export industries by driving the annual export growth rate of over 30% by 1980. The growth was slowed down for a while due to declining light industries, but the Corporation has kept the momentum of the economic growth by

transforming parks into the high-tech and digital industrial parks with a focus on IT. The Corporation has contributed to the national economy as the stepping stone and starting point of export industry promotion, and served as an activator of the export drive policy of the government by setting a role model for operation and management of industrial parks developed later.

## 2.2 Promotion of Electronics Industry and Establishment of Gumi Export Industrial Complex Corporation

### 2.2.1 Backgrounds

As the electronics industry emerged as a strategic export industry and the government finalized the policy to intensively foster the electronics industry in accordance with the Eight-Year Electronics Industry Promotion Plan. The government concluded that a large-scaled electronics industrial park should be developed as part of its packaged policies to increase exports of the electronics industry, and decided to build Gumi Industrial Park at the Expanded Meeting for the Export Promotion in 1970. Selection of Gumi as a site for development of an electronics industrial park was also attributable to efforts of local leaders and entrepreneurs.<sup>27</sup> In addition, the government direction to establish a corporation to manage development of Gumi Industrial Park was given to Fine Instrument Center (FIC), which was designated as an organization to promote the electronics industry at that time.<sup>28</sup>

The Corporation Establishment Steering Committee was organized, and the Committee was chaired by the President of FIC, who was capable of financing and mobilizing HR for successful development of the Park. In April 1971, the Gumi Electronics Industrial Park Establishment Steering Committee had a meeting at the FIC office, and Korea Electronic Industry Corporation<sup>29</sup> gained approval for establishment on May 20.

In accordance with the Electronics Industry Promotion Act, Korea Electronic Industry Corporation was established in 1971 and the efforts to build construction parks were accelerated. Korea Electronics Industrial Complex Corporation was established to operate businesses necessary for fostering of the electronics industry, and it was only natural that the Corporation played pivotal roles as a main actor of industrial park development.

27 Affected by the wave of industrialization in 1960s, local leaders intended to build industrial parks in their communities. In addition, as the steering committees for establishment of industrial parks made active efforts, local residents voluntarily made efforts, expecting regional development through construction of industrial parks and actively cooperating for land expropriation.

28 FIC is an organization for promotion of the electronics industry designated in April 1969 to promote and foster the electronics industry into a strategic export industry.

29 Instead of the former name of "Gumi Electronics Industry Corporation," the Corporation was renamed as "Korea Electronics Industry Corporation" to remove the image as a local corporation and to promote the purpose of the facilitating the national electronics industry.

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The Phase 1 Project was launched in November 1971, and completed in May 1972. The headquarters of the Corporation was transferred from Seoul in September 1972. Electronic Industries Association of Korea was the key developer of Gumi Industrial Park, and the measure to attract the textile businesses of Daegu was adopted at the initial stage due to difficulties in attracting electronics businesses only. Electronic Industries Association of Korea was renamed as Gumi Export Industry Cooperative, and operated funds for financing land reclamation and development as an organization attached to the Ministry of Industry and Resource (now the Ministry of Knowledge Economy). The Act on Development and Construction of Export Industrial Parks was applied to KEIC from December 1973, and the Corporation was renamed as Gumi Export Industrial Corporation at the general meeting of promoters dated April 20, 1974, in order to change the system in accordance with the Act.

### **2.2.2 Assessment on Major Services and Roles**

The first initiative taken by the Corporation was construction of an industrial park, which meant not only preparation of sites but also installation of infrastructure on the sites such as roads and water systems. The Corporation managed various types of construction businesses necessary for industrial park development, in cooperation with Korea Water Resources Corporation and other organizations.

The Corporation successfully fulfilled its role as a main supporter while operating the programs for construction and maintenance of the industrial park at the initial operation stage of Gumi Industrial Park. When the industrial park development was under way, the Corporation had to promptly respond to the needs for broad support of resident enterprises which had already moved to the completed sites and potential residents intending to move to the sites as early as possible. The headquarters of the Corporation accommodated various support organizations and branches, including administrative organizations including the Korea Post and support organizations such as Gumi Office of the Ministry of Commerce and Industry, Industrial Bank of Korea, Gumi Immigration Service of the Ministry of Justice, Gumi Customs Service, offices of construction companies and the corporation hospital. The office which took charge of services of the Corporation was located on the second floor, and maintained partnerships with other support organizations.

Korea Electronics Industry Corporation served as a pivot of industrial park development through not only construction but also efficient management of the Park. The Corporation was established with the contribution of KRW 1 million from Fine Instrument Center (FIC), and financed operations with government subsidies. As its assets continuously grew through sales of land, collection of management fees and borrowings from banks, the Corporation secured the capital to smoothly operate its services. As park development required a huge budget, the government granted subsidies of KRW 0.273 billion in 1972 and 1973, in order to support asset acquisition and operation of the Corporation. Since then, the long-term borrowings reached a total of KRW 6.6 billion, and the assets of the Corporation continuously increased as development of the Park was operated in a full scale and lands

were sold. In 1988, the Corporation established a combined heat & power plant to operate a community energy supply business and obtained loans from banks.

The Corporation was renamed as Gumi Export Industrial Complex Corporation in 1974, and appointed to comprehensively support overall export industries and foster the electronics industry. The functions of management of and support for the Park were further reinforced for efficient management of the Park that was being expanded.

#### Box 4-3 | Major Services of Gumi Export Industrial Complex Corporation

1. Construction and operation of the Park
2. Attraction of export industries to the Park
3. Installation and operation of common facilities in the Park
4. Labor support for resident enterprises of the Park
5. Research for overseas market entries
6. Additional services directed by the Minister of Commerce and Industry (now the Minister of Knowledge Economy) and other services required for fulfillment of the above responsibilities

Source: Gumi City Office, History of the Gumi Export Industrial Complex Corporation: Four Decades, 2010.

The primary responsibilities of the Corporation included management of common facilities, development of the Park and attraction of resident enterprises. Driven by strong support of the government and intensive services of the Corporation, a large-scaled park with the area of 6.2 km<sup>2</sup> was completed for over two years.

#### Box 4-4 | Efforts of Gumi Export Industrial Complex Corporation for Attraction of the Electronics Businesses

The domestic electronics industry did not have a solid basis when Gumi Electronic Industrial Park was built, and some enterprises were already operating businesses near Seoul, making attraction of electronics businesses difficult. The Corporation made active investment promotion efforts including advertising the Park on foreign media. In order to improve living conditions for resident enterprises, the apartment buildings for domestic and foreign employees were constructed and transportation facilities were expanded, focusing on solving difficulties faced by start-ups.

In addition, the Corporation built and sold standardized plants to reduce the burdens on resident enterprises in relation to plant construction, which was very effective in attracting foreign invested companies. More notably, the Corporation

continuously sought to maintain low prices of plants to activate the sales of plants with price competitiveness. As a result, resident enterprises, especially foreign invested companies, grew from 1972, and TV Business Unit of Goldstar, a large enterprise, was attracted in 1973. The Corporation visited domestic enterprises in nationwide to encourage transfers to the Gumi Industrial Park, and hosted multiple rounds of domestic and overseas investor briefings to attract more businesses.

Source: Gumi City Office, History of the Gumi Export Industrial Complex Corporation: Four Decades, 2010.

Gumi Industrial Park faced labor shortage, unlike Korea Export Industrial Park. The Corporation established HR Recruitment Division, and provided free services for job information. In 1975, the HR recruitment service was transferred from the Ministry of Employment and Labor to the Corporation.<sup>30</sup> The Corporation established the Job Counseling Center and provided the job brokerage services, and installed the PR board as a communication channel between job seekers and employers. In addition, the Corporation coordinated Special Classes<sup>31</sup> to support factory workers who intended to study at night.

#### Box 4-5 | Efforts of Gumi Export Industrial Complex Corporation for HR Recruitment

There is an episode which well illustrates the Corporation's active efforts as a job broker. As the number of female college students increased in the late 1970s, leading to shortage of female workers who were high school graduates, officials of the Corporation visited a commercial high school in Muan, Jeolla Province which was about 300km far from Gumi, with members of businesses looking for employees, and promoted job opportunities. As a result, 36 graduates decided to work in Gumi, and OO Electronics, which intended to hire those graduates, sent a chartered bus on the day to bring the graduates to Gumi.

Source: Interview with the editor of the book, "History of the Gumi Export Industrial Complex Corporation: Two Decades".

The Corporation also provided financial support for SMEs, and actively solved issues raised by businesses and workers including establishment of freight train stops at Gumi Station, extension of city bus routes, abolishing of the academic restrictions for recruitment of employees and installation of daycare centers by hosting meetings.

<sup>30</sup> To deal with the technical HR shortage in the parks, establishment of the technical expert training centers in the parks was proposed as the best solution. The government planned to establish technical expert training centers in three locations including Masan Free Export Zone, Gumi Industrial Park and Korea Export Industrial Park.

<sup>31</sup> The classes were established to provide workers with opportunities to get middle and high school education. The classes were operated at middle schools and high schools adjacent to the Park, and some large-scaled businesses operated in-house classes.

As the electronic industrial belt and incubator of the electronics industry, the Corporation significantly contributed to the export growth of the Park and promotion of the electronics industry. The remarkable contributions of the Corporation are proven in the following figures. Beginning with exports of USD 8 million through the first delivery in 1971, the Corporation recorded the export of USD 10 billion in 1999 for the first time as a single corporation. In December 2010, the export reached USD 38 billion. As seen in the above, the Corporation has fully served as the bridgehead for industrial development of Korea by firmly supporting the export drive policy of the government, and playing an important role in promoting the heavy and chemical industries in 1970s.<sup>32</sup>

## 2.3 Promotion of Heavy and Chemical Industries and Establishment of Southeast Regional Industrial Complex Corporation

### 2.3.1 Backgrounds

Korea achieved the ultra-fast export growth by implementing the export drive policy in 1960s, but it faced a challenge of advancing its industrial structure. Korea restructured its industry from the light industries-centered structure with low added values into the heavy and chemical industries-centered, one with high additional values. The government announced the plan of heavy and chemical industrialization in January 1973, which was closely related to promotion of the national defense industry. As the plan was a large-scaled initiative aiming to foster six industries including electronics, machine, ship building, petrochemical, steel and non-ferrous steel industries simultaneously, multiple industrial parks were constructed at the same time. Parks were built in the southeastern coastal areas including Ulsan and Pohang, and existing heavy and chemical industrial parks were expanded and newly established in the southeastern coastal areas. Gumi Industrial Park was expanded, and Changwon Machine Industrial Park was newly established. As multiple heavy and chemical industrial parks were built at the same time, organizations managing development of the parks had to be established. Korea Machine Industry Corporation was established in April 1974 to develop and operate Changwon Comprehensive Machine Industrial Park, which would serve as an incubator and the base of the machine industry. The Corporation was renamed as Changwon Machine Industrial Corporation in 1976, and restructured as the Corporation with reinforced park management functions in 1978 along with other Corporations. In 1991, the Corporation was renamed as Southeast Regional Industrial Complex Corporation in 1992 again as it was consigned to manage major industrial parks (Onsan, Anjeong and Ulsan Industrial Parks) of the southeastern area of the country.

<sup>32</sup> Park, Sang-Bong, Gumi National Industrial Park: A Global High-Tech IT Cluster "I-Valley". *Industrial Location*, vol.35, KICOX, 2009. p.44.

### 2.3.2 Assessment on Major Services and Roles

Korea Machine Industry Corporation was established in 1974 with contributions of KRW 2 million from Korea Association of Machinery Industry. From 1974 to 1979, the Corporation operated businesses with government subsidies of KRW 1.174 billion. Since then, the Corporation has developed profit sources such as sales of factory sites and sales of commodities for workers.<sup>33</sup> The assets of the Corporation grew through steady growth of current assets and an increase of fixed asset values, enabling smooth operation of the Corporation.

It was urgent to attract machine-related industries to activate the Park, and the programs to attract resident enterprises were actively operated after the Corporation was established. Nevertheless, no large enterprises intended to operate a machine business as it required massive initial investments. In addition, it was difficult to attract foreign investments due to economic recessions caused by an oil shock. To deal with the situation, the government provided resident enterprises of Changwon Industrial Park with great financial incentives. While factories related to the machine industry constructed or expanded in areas other than Changwon were eligible for the subsidy of 20% of construction costs and working capital, the factories located at Changwon Industrial Park were eligible for the subsidy of up to 37%. In addition, the Corporation provided more favorable payment conditions of the five-year repayment period after the three-year grace period for sales of factory sites, in order to ease financial burdens on resident enterprises.

Korea Machine Industry Corporation fulfilled the following responsibilities as a management organization.<sup>34</sup>

#### Box 4-6 | Major Services of Korea Machine Industry Corporation

1. Construction and sales of the Park/management and operation of the Park
2. Attraction of investments and support for promotion of businesses in the Park
3. Loan brokerage for resident enterprises
4. Storage and supply of raw materials
5. Test, analysis and inspection of machines
6. Development of overseas markets and brokerage of transactions/ services as an export and import agent for resident enterprises
7. Installation and operation of common facilities in the Park/ securing and supply of labor in the Park

Source: Southeast Regional Industrial Complex Corporation, *Initiation and Future of Heavy and Chemical Industry: History of Southeast Regional Industrial Complex Corporation-Two Decades*, 1996.

<sup>33</sup> There was few stores handling daily necessities for workers at Changwon Industrial Park at that time, and the distance from the downtown area was long. The Corporation operated an outlet to supply daily necessities.

<sup>34</sup> Southeast Regional Industrial Complex Corporation, *Initiation and Future of Heavy and Chemical Industry: History of Southeast Regional Industrial Complex Corporation-Two Decades*, 1996. p. 226



The primary services of the Corporation included supply and sales of factory sites and support for factory establishment, but the Corporation also operated various business support services.

#### Box 4-7 | Activities of Korea Machine Industry Corporation for Tech Support Programs

In addition to support for residence and factory establishment, the Corporation provided technical information, global market data and management information, considering weak technology competitiveness of the machine industry, and hosted several rounds of seminars on technology and pollutions to help successful stabilization of resident enterprises. In 1991, the Corporation provided financial support so that the Industrial Technology Research Association could be established for technology development. Since established, the Association has operated technology transfer programs and provided funds for technology development, and participated in research and development projects with resident enterprises.

Source: Southeast Regional Industrial Complex Corporation, *Initiation and Future of Heavy and Chemical Industry: History of Southeast Regional Industrial Complex Corporation-Two Decades*, 1996.

The Corporation also established the HR Support Center in 1991 to operate information services for businesses and job seekers. The Center developed a database by collecting job information from businesses, and served as a job broker by providing job seekers with the collected recruitment information.

In addition, the Corporation built standardized plants to help small businesses easily acquire factory sites, and established and operated the direct outlet mall selling daily necessities as a part of employee welfare programs. The Corporation Center established in 1980 served as a venue for promotion and exhibition of products of resident enterprises, supporting marketing of resident enterprises. The Center was also used for various applications including sports events and other events, improving employee conveniences. The Corporation established the Exhibition Center in 1988 and hosted annual fairs specialized in molds.

The efforts of the Corporation to manage Changwon Machine Industrial Park and support resident enterprises of the Park facilitated growth and development of Changwon Park. Busan Gun Metal Corporation, a valve manufacturer, began operation in 1975 for the first time at Changwon Industrial Park, and 56 plants were operated in 1978. The number of workers reached 31,000 in the same year. As of 1978, the annual production of the Park already exceeded USD 0.5 billion. Since then, the Park continuously grew and achieved the export of USD 0.235 billion in 1980 and USD 1 billion in 1987. In 1992, the Park achieved the meaningful goal of exporting USD 2 billion.<sup>35</sup> It was even more meaningful in a sense

<sup>35</sup> Southeast Regional Industrial Complex Corporation, *Initiation and Future of Heavy and Chemical Industry: History of Southeast Regional Industrial Complex Corporation-Two Decades*, 1996. p.224

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that the Park achieved such a great success without any firm foundation for the machine industry. The Park drove the remarkable growth of the Korean economy, which began with the export drive policy in 1960s.

## 2.4. Conclusion

The government achieved a revolutionarily fast economic growth by implementing the export drive policy, enabled by the policy to promote specific industries and the policy to develop parks dedicated to the selected industries. Korea Export Industrial Park, Gumi Export Industrial Park and Changwon Machine Industrial Park supported the government policies for export drive and promotion of heavy and chemical industries, significantly contributing to the take-off of the Korean economy.

During the rapid growth process, the Corporations managed development and management of the Parks at first, and then concentrated on management affairs later. As successful implementation of the government policy for promotion of specific industries was determined by development and operation of specific parks, the Corporations were responsible for early development and stabilization of the Parks. The Corporations were able to focus more on management of Parks after the Parks were completed and the applicable laws were revised. Since then, the Corporations have maintained the original functions as manufacturing industry promoters, and enabled production of synergy effects through industrial clustering. In addition, the Corporations have turned Parks into a venue of innovations by providing comprehensive support (clusters, eco-industrial parks and structure advancement programs) for business activities of resident enterprises, according to changes in economic conditions and industrial structures.

## 3. Establishment and Roles of Korea Industrial Complex Corporation (KICOX)

### 3.1 Merger of Five Complex Corporations<sup>36</sup>

In 1960s and 1970s when economic development was a top priority, the manufacturing industry was activated through development of industrial parks for economic development, and large-scaled industrial parks were built in each region. Individual organizations managed the parks of each region, causing pluralism and segmentation of the management system. When the development period was over in 1990s, small local industrial parks and Agricultural Industrial Parks were developed to pursue the balanced national development and the number of management organizations grew. The need to establish a centralized industrial park management organization was raised, and it was required to reinforce the

<sup>36</sup> Korea Export Industrial Corporation, Jungbu Industrial Complex Corporation, Dongnam Industrial Complex Corporation, Seobu Industrial Complex Corporation and Seonam Industrial Complex Corporation

services supporting resident enterprises in addition to the management services. A need to establish a unified management body for integrated, efficient management of National Industrial Parks was raised.

Driven by such needs for a new governance system and the policy to improve the national competitiveness by 10%, which was being implemented at that time, five management organizations were merged as a management body.<sup>37</sup> The task force team for integration of industrial park corporations was organized, and the team coordinated matters related to HR and organization operation, establishing Korea Industrial Complex Corporation (KICOX) on January 10, 1997. The Steering Committee for Establishment of Korea Industrial Complex Corporation was organized and the matters related to HR and organizational operation were adjusted. Following the government decision on integration of five national industrial complex management corporations in 1996, the Corporation was established in January 10, 1997 in accordance with the Act on Promotion of Industrial Clustering and Factory Establishment. The purpose of establishment was to contribute to the national economic development through sustainable industrial development by activating development of industrial parks and industrial clustering, supporting factory establishment and industrial activities of businesses, and systematically managing industrial locations and industrial parks.

### 3.2 Organization and Services of KICOX at the Initial Stage of Operation

As KICOX was established, five existing corporations were restructured into the governance system with one head office and regional headquarters. Through integrated management of National Industrial Parks, efficiency in HR allocation and services was improved, and support services were added to the existing services focused on management. While primary services of the corporations focused on management affairs including sales and management of factory sites and development and operation of infrastructure such as public facilities before restructuring, the newly integrated corporations provided reinforced services such as support for factory establishment, development and supply of specialized industrial parks and financial and labor support. In addition, Industrial Land Information Center was established to provide reinforced research services including production and operation status management of industrial parks and researches on industrial location policies.

As of the date of establishment, KICOX consisted of the head office and five regional headquarters, and 408 employees were working. The number of employees and the scope of organization decreased at point of merger, but the restructured system enabled diversified support services through clear allocation and systematic management of roles and responsibilities of the head office and regional headquarters.

<sup>37</sup> The policy that the government of Korea implemented to save costs or improve productivity by over 10% for management innovations of the public sector including government-invested corporations

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The head office fulfilled responsibilities such as integrated management of industrial land sales and affairs related to residence; development and management of support services for resident enterprises; researches on location policies; and statistics management on industrial parks. The regional headquarters served as contact points for resident enterprise, and their responsibilities included affairs related to management of resident enterprises; follow-up management; support for factory establishment; labor-management relations; production and operation survey; and financial and labor support, which completed a package of direct support for resident enterprises.

### 3.3 Changes of Services of KICOX

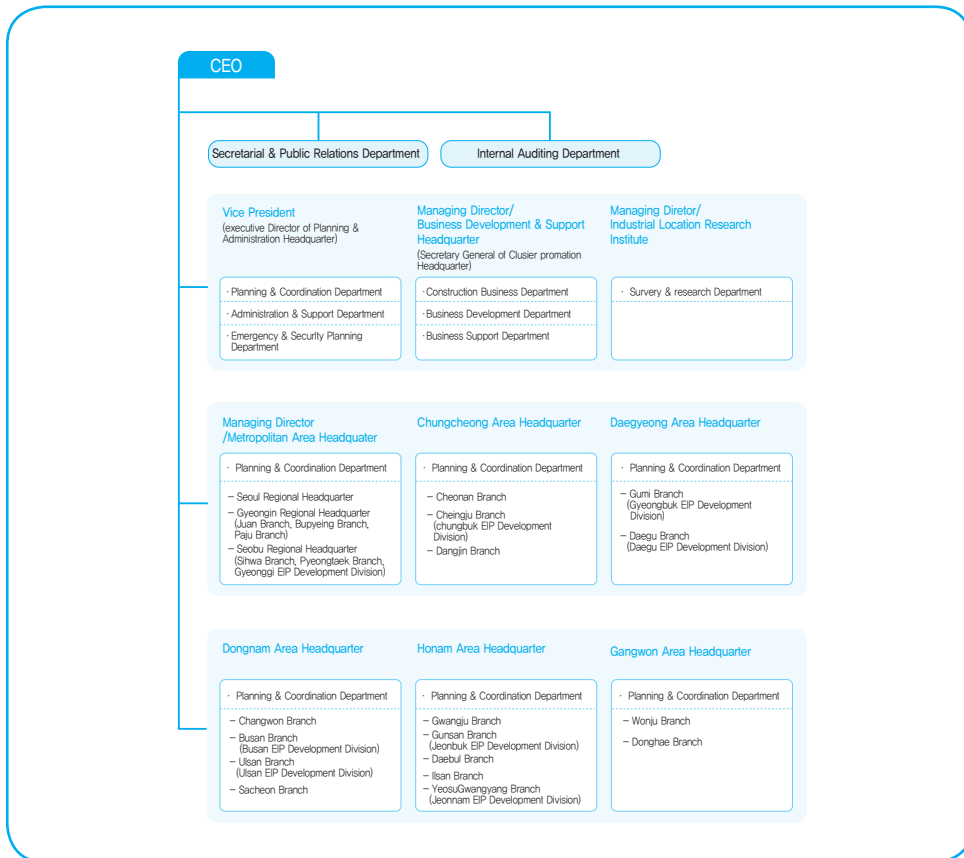
Industrial parks, which grew mainly with the manufacturing sector from 1960s to 1990s, provided only production services, and the industrial park management organizations focused only on administrative management services such as sales of industrial parks, management of contracts and management of use zoning. In particular, individual management organizations operated projects aligned with the purposes of industrial park development before restructuring. Korea Export Industrial Corporation operated projects focused on exports, and expanded the scope of services to include welfare services; and development and operation of support facilities from 1990s.

In 1997, services such as support for factory establishment of SMEs, financial and labor support for resident enterprises and R&D related to industrial location were added as five management organizations were integrated. The support services were reinforced as the organizations launched services such as development and supply of specialized industrial parks to cater to the needs of small-scaled specialized businesses or to attract high-tech businesses; and construction, sales and lease of apartment-type factories(flatted factories) for small businesses.

As the industrial and economic paradigm changed, industrial parks were transformed from production sites into the spaces of innovations where industry and technology were clustered, and existing industrial parks faced limitations in further growth due to lack of cooperation among industry, academia and research; R&D capability; knowledge-based services; and conditions to attract highly skilled workers. As new services of industrial parks emerged, support for various areas such as reinforcement of R&D capability and networking was required to be provided, in addition to support for business management such as financial, labor, logistics and information services. Meanwhile, the need for development of eco and resident-friendly industrial parks was raised to solve the conflicts with local communities caused by discharge of pollutants from existing industrial parks. To deal with the situation, KICOX launched new programs such as Industrial Park Clustering Program, Eco Industrial Park Development Program and Structure Advancement Program, expanding the scope of support and reinforcing the services.

Such changes in support functions and roles of the management organization have been clearly reflected to the current organization of Korea Industrial Complex Corporation. The organizations of the Corporation primarily consist of business development and headquarter, and industrial location research institute in addition to regional headquarters and headquarter departments in charge of planning and coordination. Each headquarter operates departments satisfying demands of businesses rapidly increasing due to the paradigm shift in the industrial structure.

Figure 4-2 | Organization Map of KICOX



## 4. Major Programs of KICOX

KICOX has expanded various programs under the shifted paradigm for development of resident enterprises and industrial parks. The primary services of KICOX included sales of industrial sites, residence management and follow-up management, which have been provided by the first industrial park corporation, and new services such as establishment and operation of apartment-type factories(flatted factories), labor and financial support,

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support for factory establishment of individual firms and support for transfers of businesses located in the Seoul Metropolitan Area to local sites have been added since integration of the management organizations. Newly added services have been the basis of today's key services including cluster development, development of eco-industrial parks, structure advancement and industrial park development.

#### 4.1 Program for Competitiveness Improvement of Industrial Clusters

Conventional industrial parks provided spaces for manufacturing and production, but there were inherent limitations in sustainable growth of industrial parks and resident enterprises due to lack of R&D capability of resident enterprises and partnerships among industry, academia and research. KICOX launched the Program for Competitiveness Improvement of Industrial Clusters (Industrial Complex Cluster Program) to leverage clustered businesses to build the network of resident enterprises and partnerships among adjacent universities, research organizations and business support organizations.

The Program aims to create synergism and improve competitiveness of each sector by enabling resident enterprises to build organic partnerships with universities, research organizations and business support organizations that are located adjacent to the parks. This Program allows businesses which lack management capabilities to build the industry-academia-research partnership for technology transfers from universities and research organizations. Through technology transfers, the businesses can solve technical problems and reinforce tech competitiveness. In addition, KICOX has facilitated growth of resident enterprises by expanding the scope of production through cooperation among related businesses and improving marketing skills through business support organizations.

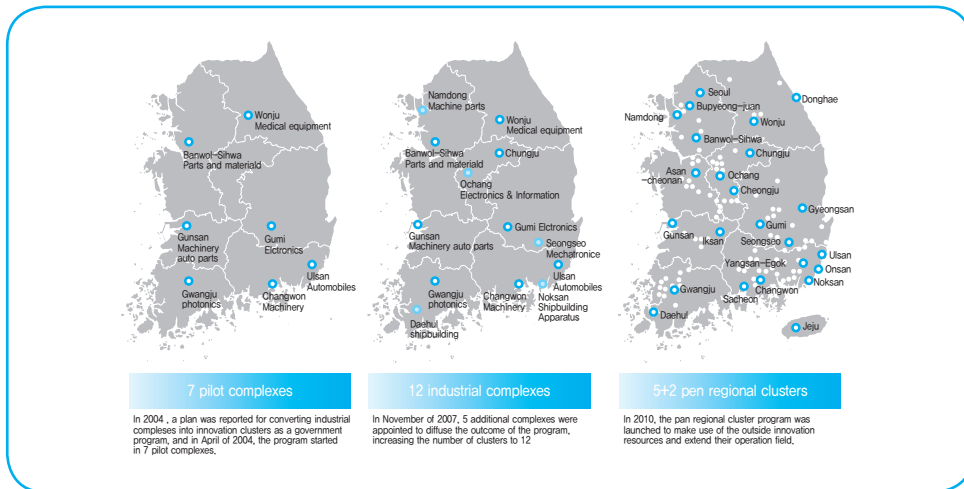
The Program was operated at seven Parks<sup>38</sup> selected for pilot operation in 2005, and five parks<sup>39</sup> additionally adopted the Program in 2007. In 2010 which marked the 6th anniversary of the Program, the Program was restructured into the hub-spoke system operated in six regions in accordance with the 5+2 Regional Economic Bloc<sup>40</sup> System. Since restructured, the Program has been operated at the national level, adopted by 168 spoke parks and 25 hub parks.

38 Banwol-Siwha, Gumi, Changwon, Ulsan, Gunsan, Gwangju and Wonju

39 Namdong, Busan, Daegu, Daebul and Ochang

40 The blocs were designated in consideration of economic and industrial zones and historic and cultural homogeneity, with the aim to improve competitiveness of each region through cooperation and partnerships among regions. Five Regional Economic Blocs include the Seoul Metropolitan Area, Chungcheong Area, Honam Area, Southeast Area and Daegyeong Area and two Special Regional Economic Blocs include Gangwon and Jeju Areas.

Figure 4-3 | Phase of Program for Competitiveness Improvement of Industrial Clusters



Source: Korea Industrial Complex Corp (www.kicox.or.kr).

Expert groups in technology and business management and mini clusters organized by area built the foundation for the industry-academia-research network, and support for R&D, protocol development, participation in domestic and overseas fairs and preparation of PR materials facilitated the entire business cycle of enterprises, which begins with technology development and ends with product sales. The regional network has been activated since the Regional Bloc System was adopted, and exchanges among 193 industrial parks have been reinforced. Based on the activated network, KICOX has developed and supported exchanges and cooperation initiatives among businesses located in different regions, enabling tech partnerships beyond the regional borders.

Industrial parks have played pivotal roles in local economic growth through the Cluster Development Program. As businesses of specific industries were continuously clustered, parks were evolved into clusters specialized in specific industries. The Program also significantly contributed to facilitation of the industry-academia-research cooperation and businesses of SMEs.

## 4.2 Eco-Industrial Park(EIP) Development Program

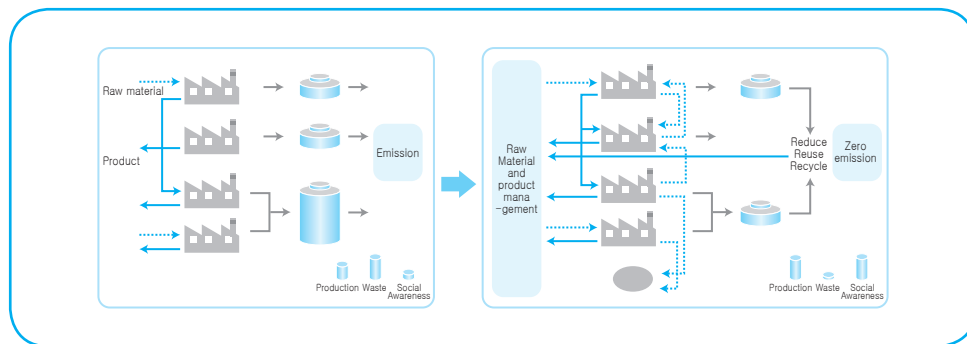
As the awareness on environment grew in the society and discharge of pollutants was continuously criticized, there was a growing need for industrial parks pursuing both environmental preservation and industrial development. To cater to this need, KICOX launched Eco-Industrial Park<sup>41</sup> Development Program (the EIP Program). The EIP Program

<sup>41</sup> Green industrial parks recycle wastes discharged from industrial parks as raw materials or energy for other businesses to improve resource efficiency and minimize pollution.

aimed to transform existing industrial parks into sustainable eco industrial parks, in order to maximize efficiency in resource and energy use and reduce discharges of pollutants.

The purpose of the EIP Program included building recycling network among resident enterprises of industrial parks, maximizing efficiency in energy and resource use and minimizing pollutant discharges. Under the EIP Program, Eco-Network which is similar to the natural ecosystem is developed to minimize material and energy use through eco network among businesses. Eco-Network enables conversion of by-products and wastes discharged from industrial parks into energy and raw materials, with the aim of Zero Emission.

**Figure 4-4 |** The Concept of EIP: Conventional Industrial Park and Eco-Industrial Park



Source: Korea Industrial Complex Corp.(www.kicox.or.kr)

Korea planned the EIP Program in 2003, and selected five target parks<sup>42</sup> and launched the Program in 2005 and 2006. To expand the scope of the Program, the Regional Bloc System was developed in 2010 and the hub-spoke approach was applied to 38 parks in eight regions (Jeonbuk, Daegu and Busan added). Detailed action plans for various sectors such as business partnership plans, local initiatives and tech development plans have been implemented to build eco industrial parks, and the forums have been established and operated for networking and technology exchanges. As of 2010, a total of 155 action plans have been implemented with 71 initiatives completed. If commercialized, the 71 initiatives are expected to annually produce KRW 408.4 billion and reduce CO<sub>2</sub> of 1.17 million tons.

### 4.3 Industrial Park Restructuring

As development of industrial parks began in 1960s, deteriorated parks are increasing. There are 48 industrial parks that were built 20 or more years ago, accounting for about 22% of the National Industrial Parks and Local Industrial Parks currently being operated (215 as of 2009). Aged industrial parks have deteriorated infrastructure and production facilities,

<sup>42</sup> Pohang, Yeosu, Ulsan-Mipo-Onsan, Banwol-Siwaha and Cheongju



and suffer a decline of resident businesses. Accordingly, the parks are less productive and have difficulties in introducing new production systems.

Korea is restructuring its industrial structure from the manufacturing-centered structure into the knowledge-based industry, and the quality of life of workers has emerged as an important issue. In particular, the overall improvement of infrastructure such as research, cultural, welfare and support facilities is critical for inducement of an influx of the youth valuing working and welfare conditions. Due to the lack of cultural, welfare and educational facilities and related programs, there are few opportunities for workers to create and enjoy cultural settings at industrial parks and develop themselves through learning. Despite the growth of resident enterprises, industrial parks have not expanded roads and parking facilities, lowering productivity of the parks. Aged infrastructure and poor working conditions lower the quality of life of workers, and lack of living facilities causes hollowing-out of the parks after working hours. This may cause the youth avoiding getting jobs at industrial parks. To deal with the situation, the Structure Advancement Program was launched to improve attractiveness and competitiveness of aged parks by expanding support facilities and renovating infrastructure.

The Structure Advancement Program consists of the industrial structure advancement plan, the support facility expansion plan, the infrastructure renovation plan and the cultural and welfare facility expansion plan. For industrial structure advancement, the types of businesses accommodated in the parks are developed into specialized businesses with high added values for promotion of specialized industries or strategic local industries. The detailed initiatives include business transfers, building of apartment-type factories (flatted factories), activation of network and promotion of R&D commercialization. For support facility expansion, support facilities which are critical for improving productivity of businesses and added values are maintained, repaired and expanded. For example, business service organizations can be expanded. For infrastructure renovation, roads, green areas, parks, parking lots and environmental treatment facilities are renovated to improve attractiveness of the parks as industrial locations. Expansion of cultural and welfare facilities aims to expand convenience facilities to transform the parks into pleasant workplaces and living spaces for workers. Banwol-Siwaha, Namdong, Gumi and Iksan Industrial Parks were selected for the pilot program in December 2009, and the private sector, KICOX and local governments are individually or jointly operating a total of 30 initiatives.

#### 4.4 Industrial Park Development (Development of Customized Industrial Parks)

Korean government had to supply large-scaled locations to the industry in order to promote the process industry, and supplier-centered large-scaled industrial parks were developed in a standardized manner. However, the so-called light, thin, short and small industrial structure emerged, and the demands for small- and mid-sized industrial locations grew, fueling development of small- and mid-sized industrial parks customized for users.

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Industrial parks are developed based on the demands of businesses, and the synergism of the park growth cannot be maximized without business support for successful management of the parks and growth of businesses after development. As an industrial park management expert, KICOX has accumulated know-how on follow-up management and operation and expertise in business support, as well as experiences in industrial park development. KICOX targets to supply industrial parks to areas with demands for industrial locations in a timely manner to relieve supply shortage and contribute to growth of resident enterprises, industrial parks and local economies. As demands for industrial parks are growing in the Seoul Metropolitan Area and the southeastern area despite concerns over oversupply, KICOX is developing Daewol Industrial Park in Icheon, Hongjuk Industrial Park in Yangju and Gimhae Industrial Park. In addition, KICOX is also working on development of Osong Bio-Health Technopolis and Ulsan Techno Park (Infrastructure Industry Techno Park in Ulsan), in order to provide many enterprises with opportunities to operate their businesses at industrial parks.

2011 Modularization of Korea's Development Experience  
Industrial Park Development Strategy  
and Management Practices

## Chapter 5

### Achievements of and Assessment on Industrial Parks

1. Industrial Park Development Achievements
2. Success Factors of Industrial Park Strategy
3. Challenges for the Future of Industrial Park

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## Achievements of and Assessment on Industrial Parks

Since the early 1960s, Korea has achieved a remarkable economic growth through rapid industrialization, growth of production and employment and advancement of industrial structure, thanks to the intensive economic development strategy of the central government. During the course of pursuing efficient use of scarce resources and the clustered economic system as a way to achieve the rapid economic development, industries in selected areas were promoted and large-scaled industrial parks were built. Korea's manufacturing-centered industrial parks have played a significant role in national industrial development, improvement of industrial competitiveness, facilitation of national land management and efficient use of resources, serving as a main driver of the economic development.

During the course of building industrial parks, excessive concentration of industries was witnessed in some areas, and keeping the balance between efficient use of national land and the balanced national development emerged as a serious social issue.<sup>43</sup> In the late 1970s when development of large-scaled industrial parks was controlled to improve the situation and small- and mid-sized parks were developed in less developed areas, the government failed to develop detailed action plans, causing discrepancies between the plans and the reality.<sup>44</sup>

Nevertheless, there is no doubt that manufacturing-centered industrial parks have contributed to Korea's remarkable economic growth and development as a main actor and growth engine, and the contributions of the parks are being highly recognized.

<sup>43</sup> The growth pole development approach taken by the mid 1970s caused overpopulation in the Seoul Metropolitan Area and the southeastern area, and population decrease and slowdown of industrial activities were continued in less developed areas for a long time, weakening the national integrity caused by regional gaps.

<sup>44</sup> Unused areas of large-scaled complexes grew in the early 1980s through adjustment of investments into heavy and chemical industries, and some industrial complexes were hastily developed only for the purpose of decentralization of industry and supply of industrial locations, causing vacancy of complexes for a long term in 1990s.

# 1. Industrial Park Development Achievements

## 1.1 Contribution to Industrial Development and Economic Growth

In 1950s when the Korean War (1950-53) was over, agriculture accounted for 44.5% of the Korean industry, while manufacturing accounted for only 11.6% of the overall industry, indicating the industrial vulnerability of the country. However, Korea developed its economy in a full scale by implementing the export-driven industrialization policy in 1960s and the heavy and chemical industries-centered economic policy in 1970s. As industrial parks focusing on the manufacturing sector were intensively built, the growth rate of the agricultural sector stalled and the share of the manufacturing sector skyrocketed.

The industrial structure had a massive change, with the share of agricultural, forestry and fishery industries decreasing from 36.8% of 1960 to 16.0% in 1980 and the share of the manufacturing sector exceeding 20% after the mid 1970s. The share of the manufacturing sector grew from 13.8% to 24.6%, and that of the service sector grew from 43.2% to 48.0% during the same period. As of the end of 2009, the manufacturing sector accounted for 27.7% of the Korean industry.

**Table 5-1 |** Changes of Industrial Structures of Korea (1955-2009)

Items	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2009
Agriculture	44.5	36.8	38.0	29.1	26.9	16.0	13.3	8.7	6.2	4.6	3.3	2.6
Mining & Manufacturing	12.6	15.9	20.0	20.2	23.7	26.0	28.0	27.4	27.2	28.6	27.8	28.0
(Manufacturing)	11.6	13.8	18.0	18.5	22.2	24.6	26.7	26.6	26.7	28.3	27.5	27.7
Construction & Utilities	3.6	4.1	4.7	6.4	5.6	10.0	9.8	12.5	12.1	9.4	9.9	8.7
Services	39.3	43.2	37.2	44.3	43.7	48.0	49.0	51.5	54.6	57.3	59.0	60.7

Note: Nominal, total base price of value added (1969 and previous figures are based on 1975 figures, and figures for 1970 and later periods are based on the figures of each year)

Source: Economic Statistics System, the Bank of Korea, [www.ecos.bok.or.kr](http://www.ecos.bok.or.kr)

It is no exaggeration to say that Korea has achieved its economic development solely through growth of the manufacturing sector, which is verifiable in various aspects. Industrial parks have led continuous economic growth in the course of industrial development of the country by providing physical infrastructure for growth of the manufacturing sector. Supplying spaces for production and physical infrastructure, the parks have significantly contributed to a rapid industrial growth with limited investments and vulnerable industrial infrastructure. In addition, the parks have served as the hubs of Korea's industrial policy implementation, and as an incubator of the nation's strategic industries.

The growth rate of the manufacturing sector (the production amount in constant dollars) more than doubled the GDP growth rate with the annual average growth rate of 15.6% in 1970s. The gap was narrowed down in 1980s and 1990s, but the rate was still much higher than the GDP growth rate, which continued through 2000s.

**Table 5-2 | Economic Growth Rate (GDP and Manufacturing)**

Items	1970-1980	1980-1990	1990-2000	2000-05	2006	2007
GDP	7.4	8.6	5.8	4.6	5.0	5.0
Manufacturing	15.6	11.2	7.5	6.6	8.5	6.5

Source: The Bank of Korea, National Income of Korea,

Meanwhile, the industrial structure of the manufacturing industry has been advanced as production of heavy and chemical industries outperformed that of light industries. With the basic goal of building the foundation for the economic development and the priority of the government administration on export-driven development, which was aligned with the global trend of trade liberalization, the government of Korea achieved growth of light industries as import substitution in 1960s, and textiles, apparel, plywood and shoe industries emerged as major export industries. At the same time, the government built infrastructure for some heavy and chemical industries including chemical fertilizers, oil refinery, chemical fiber and cement industries. In 1970s, heavy and chemical industries emerged as the key industries of the country, and infrastructure for basic material industries such as steel, non-ferrous metal and petrochemical industries, which supplied raw materials and intermediary goods, and tech-intensive industries such as shipbuilding, electronics, motor and machine industries was expanded.

As seen in the <Table 4-3, the portion of light industries in the total manufacturing sector plummeted from 73.7% of 1961 to 47.1% in 1981, while heavy industries doubled the share of 26.3% to 52.9% during the same period. As a result, heavy and chemical industries were further advanced in 1980s, and electronics and motor sectors further advanced their industrial structures by pursuing high technology. The trend of advancement of the industrial structure has been accelerated since 1980s, causing a rapid decline of the labor-intensive manufacturing sector. The industrial structure has been advanced as tech-based firms took larger portions.

**Table 5-3 | Growth and Change of Shares of Manufacturing Sector: Development of Structure Advancement (1955-1980)**

(Unit: %)

Items	1953	1955	1957	1959	1961	1963	1965	1967	1969	1971	1973	1975	1977	1979	1981
Light Industries	78.9	79.9	80.5	78.4	73.7	70.3	68.6	65.3	62.0	60.7	59.5	53.6	51.5	48.8	47.1
Heavy & Chemical Industries	21.1	20.1	19.5	21.6	26.3	29.7	31.4	34.7	38.0	39.3	40.5	46.4	48.5	51.2	52.9

Note: based on current market prices

Source: The Bank of Korea

Contributions of the industrial parks to the remarkable economic growth of Korea can be illustrated with the percentages of resident enterprises and job creation. The resident enterprises of industrial parks accounted for only 3% of the total manufacturing enterprises in 1970, but the share grew to 12.3% in 1990s. Jobs created by the resident enterprises accounted for 27.8% of the total jobs created by manufacturing enterprises in 1990, grown from 2.3% in 1970. As seen in the table, industrial parks have greatly contributed to growth and development of the manufacturing sector.

**Table 5-4 | Contributions of Industrial Parks to the National Economy Proved by Number of Enterprises and Job Creation Effect (1970s-2000s)**

(Unit: ea, person, %)

Items	Industrial Parks(A)		Manufacturing Sector(B)		Percentage (A/B)	
	No. of Enterprises	No. of Employees	No. of Enterprises	No. of Employees	No. of Enterprises	No. of Employees
1970	703	19,782	24,114	86,1041	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

Note: Numbers of enterprises and employees of the manufacturing sector are based on the categories defined by the Eighth Revision

Source 1: Statistics Korea (1970~2008),

Source 2: the Korea Chamber of Commerce and Industry (1970~2007), Statistics on Industrial Park of Korea.

Major industrial parks accounted for a large portion of national exports, significantly contributing to acquisition of foreign currency. In particular, textile and apparel industries of Guro Park accounted for 44.3% of the annual exports of the Park for over ten years from the late 1960s, and the exports of Guro Park accounted for about 10% of the national exports. The exports of Gumi Electronics Industrial Park, which was operated to diversify exports in 1970s, gradually increased to account for about 5% of national exports in ten years after establishment.

**Table 5-5 | Contributions of Major Industrial Parks to National Exports**

(Unit: USD million, %)

Items	National Exports	Major Industrial Parks			
		Guro	Ulsan	Changwon	Gumi
1965	175	-	5 (2.9)	-	-
1970 (1971*)	1,068	57.5 (5.4)	20 (2.2)	-	8.2* (0.7)
1975	5,033	945.0 (18.7)	321 (6.4)	0.6 (-)	101.3 (2.0)
1980	17,214	1873.7 (10.8)	1,699 (9.9)	235 (1.3)	811.9 (4.6)
1985	26,442	2680.9 (10.1)	5,426 (20.5)	605 (2.3)	1422.5 (4.7)
1990	63,124	5356.1 (8.4)	6,396 (10.1)	1,446 (2.8)	4814.5 (7.4)
1994	96,013	5712.4 (5.9)	10,439 (10.9)	2,691*	7310.9 (7.6)

Source: <http://stat.kita.net>

Gumi City Office. History of the Gumi Export Industrial Complex Corporation: Four Decades. 2010.

Korea Export Industrial Estates Corporation. History of the Korea Export Industrial Estates Corporation: Three Decades. 1994.

Southeast Regional Industrial Complex Corporation. Initiation and Future of Heavy and Chemical Industry: History of Southeast Regional Industrial Complex Corporation-Two Decades. 1996.

The share of industrial parks in the manufacturing sector continuously grew, recording 62.3% of total production in 2009, increased from 45.1% of 2000. The share of industrial parks in exports grew from 60.4% of 2000 to 77.1% of 2009, while the share of industrial parks in employees grew from 29.2% of 2000 to 45.1% in 2009. Growth accounting analysis showed that industrial parks accounted for 33.1% of the IT industry and 67.9% of the manufacturing sector in terms of total output from 2000 to 2009. In terms of jobs created, industrial parks accounted for 3.7% of the IT industry and 15.0% of the manufacturing sector during the same period. In addition, the government provided considerable financial support to finance construction of additional facilities, access roads and infrastructure, in order to reduce burdens on businesses and stimulate industrial development. As seen in the above, Korea's industrial parks have driven the economic growth of the country in the era of investment-intensive growth, and accounted for a large portion of the Korean economy.



## 1.2 Balanced National Development and Activation of Local Economies

Korea's industrial parks have been developed by considering industrial and regional characteristics in accordance with the government policy for industry and national land management. Some industrial parks were developed in locations with favorable conditions, while some parks were developed in less developed areas, significantly contributing to building of the industrial foundation in those areas.

The national government established several large industrial parks in the southeastern part of the country. The major new industrial cities or production agglomerations of Changwon, Gumi, Pohang, and Ulsan were created as a result of the efficient-first industrial policies implemented in the late 1960s and 1970s. This resulted in regional development of Southeastern area of Korea.

For example, the economy of Southeastern region was in a very poor condition in 1962 when the First Five-Year Economic Development Plan was launched. The area had the industrial structure highly dependent on the agricultural sector which was small-scaled and less productive. Since the First Economic Development Plan was launched in 1962 and the area was industrialized, the economy of the area has been advanced with emergence of the secondary industry. Ulsan Industrial Park which was the nation's first industrial park; Masan Free Export Zone that was designed to increase exports; and Changwon Machine Industrial Park were developed in Southeastern Region. In 1970s, when heavy and chemical industrial parks were intensively developed, the growth rate of the manufacturing sector of the Seoul Metropolitan Area and the southeastern area was higher than the national average until the mid 1980s, while other areas recorded relatively lower growth rates.

As efficiency-focused location policies caused regional gaps and concentration of resources, the government intended to improve the situation by building industrial foundations in less-developed areas through development of low-cost industrial parks in less-industrialized areas or less-developed areas in 1980s.

**Table 5-6 |** Area of Industrial Park and Annual Growth Rate

(Unit: km<sup>2</sup>, %)

Items	Area				Annual Growth Rate			
	1982	1990	2000	2003	1982-90	1990-00	2000-03	1982-03
Nation	241.4	347.7	485.3	529.2	4.7	3.4	2.9	3.8
	{100.0}	{100.0}	{100.0}	{100.0}				
Gyeonggi	79.1	105.0	115.8	131.7	3.6	1.0	4.4	2.5
	{32.7}	{30.2}	{23.9}	{24.9}				

Items	Area				Annual Growth Rate			
	1982	1990	2000	2003	1982-90	1990-00	2000-03	1982-03
Gyeongsang	109.2	144.2	188.0	205.8	3.5	2.7	3.1	3.1
	(45.3)	(41.5)	(38.7)	(38.8)				
Jeolla	24.6	49.9	81.3	82.5	9.2	5.0	0.5	5.9
	(10.2)	(14.3)	(16.8)	(15.5)				
Chugcheong	21.3	34.5	86.0	93.0	6.2	9.6	2.6	7.3
	(8.8)	(9.9)	(17.7)	(17.5)				
Gangwon Jeju	7.2	14.1	14.1	16.1	8.8	0.0	4.6	3.9
	(3.0)	(4.1)	(2.9)	(3.0)				

Source 1: Statistics Korea

Development of industrial parks has significantly contributed to the balanced national development as well as activation of local economies. As the industrial location policies pursuing the balanced national development were made and new industrial location policies were implemented in 1980s, industrial foundations were built and small- and medium-sized cities began to grow and be developed in provincial areas.<sup>45</sup> For example, industrialization of Gwangyang Bay Area ignited growth of Gwangyang, which was a small provincial city, and other cities adjacent to the area. As a petrochemical park and Gwangyang Steel Industrial Park were built in the southeastern area (Gwangyang Bay Area), job opportunities in the manufacturing sector increased, leading to a gradual influx of population, which directly facilitated growth of Gwangyang City. On the contrary, Suncheon City was developed through ripple effects of development of industrial parks adjacent to the city even though there was no park located in the city. Suncheon was previously one of typical less developed cities, but industrialization of Gwangyang Bay Area ignited growth of Gwangyang City, leading to an influx of population to Suncheon City. No industrial park was developed in Suncheon City, but it was developed as a city supporting Gwangyang, which is the hub of Gwangyang Bay Area. While supporting Gwangyang, Suncheon City became a stabilized city providing residential services including administration, culture, education and healthcare.

SOCs including expressways, ports and multi-purpose dams were developed, and development of large-scaled industrial parks created jobs, leading to an influx of population and development of service sectors to serve increasing population. In addition, service industries and related industries were developed at the parks to support the manufacturing sector, igniting the growth of the city.

<sup>45</sup> Lee, Jeong-Sik and Kim, Yong-Ung, *Globalization and Regional Development*, Hanul Publishing Group, 2001. pp.340-357.

As seen in the strategy, industrial parks have activated local economies by providing industrial foundations and economic foundations of the regions, and still have significance presences in local economies. As for the portions of industrial parks in local economies in 2008, the manufacturing outputs of industrial parks took high portions in Jeonnam, Ulsan, Jeonbuk and Daegu. Job creation was active in Jeonnam, Ulsan, Gwangju and Jeonbuk.

**Table 5-7 |** The Contribution of Industrial Park to the Regional Economy

Items	Seoul	Incheon	Daejeon	Gwangju	Daegu	Pusan	Ulsan
Production	19.5	42.3	69.6	72.4	75.1	39.9	85.9
Employment	37.5	50.1	48.9	67.5	54.0	28.5	71.2

Items	Gyeonggi	South Chungcheong	North Chungcheong	South Jolla	North Jolla	South Gyongsan	North Gyonsang	Gangwon	Jeju
Production	41.5	60.0	59.9	88.9	82.1	65.1	65.1	34.4	15.2
Employment	31.3	39.8	42.7	74.1	62.0	49.7	45.1	40.6	5.2

In general, market actors play less significant roles at the initial stage of national development, so the government needs to intervene and create artificial conditions as a builder and active supporter of industrial districts, a customer or a regulator of activities performed at parks. Korea's industrial parks were developed through the process. In other words, the government-led industrial park development has played a significant role in Korea's rapid industrialization, urbanization and dramatic economic development, which are all closely related to clustering and growth of the manufacturing sector of Korea.

## 2. Success Factors of Industrial Park Strategy

### 2.1 Powerful Leadership and Extensive Support of the Central Government

Looking back on the history of Korea's industrial park development, which began in the early 1960s, industrial parks have accounted for significant shares and produced remarkable results in the Korean economy. In particular, the unprecedented growth of the Korean economy was attributable various factors including the mid- to long-term economic development plans implemented by the central government, efficiency public administrative system, entrepreneurship and international economic conditions. The success of the industrial park strategy was also fully supported by the central government and the strong commitment of the national leader.

In the early 1960, when the economic growth strategy of Korea was implemented in a full scale, beginning with the First Five-Year Economic Development Plan, Korea was operating the public administration system with strong leadership of the President. The

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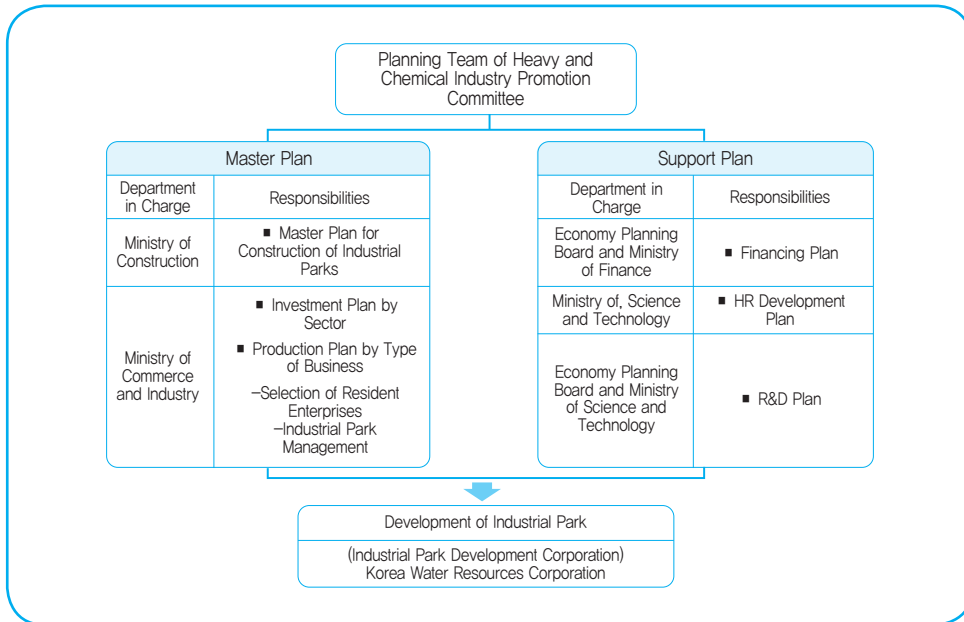
then-President Park Chung-Hee directly managed development of industrial parks. Such strong enthusiasm and high interests of the national leader enabled full and consistent support of the central government for industrial park development, combined with capable public officials who skillfully implemented the plans and the centralized administration system. Development of industrial parks was a large-scaled project requiring a huge budget for land expropriation and infrastructure building, so enthusiasm of the national leader and the efficient administration system were critical for the success of the policy.

Development of heavy and chemical industrial parks in 1970s can be provided as a representative example of the strong support of the government. The Korean government established the Heavy and Chemical Industry Promotion Committee chaired by the Prime Minister and the Planning Office of Heavy and Chemical Industry Promotion Committee as a working group, in order to centralize implementation of the heavy and chemical industry promotion strategy. In particular, the Planning Office took charge of master planning for promotion of heavy and chemical industries, and Presidential Secretary for Economy who directly reported to the President led the Planning Office to effectively mobilize all available administrative authorities. At the same time, the Bureau of Industrial Location was newly established as an organization dedicated to heavy and chemical industrial location development at the Ministry of Construction (the Ministry of Land, Transport and Maritime Affairs). The Bureau enacted and announced a new regulation<sup>46</sup> on development of heavy and chemical industries. The government also established Korea Industrial Park Development Corporation (now Korea Water Resources Corporation) as a government-owned organization dedicated to industrial park development, in order to accelerate its efforts to build heavy and chemical industrial parks.

Allocation of the government budget well illustrates that the central government has not spared any support for industrial park development. The government established Korea Industrial Complex Development Corporation as the wholly owned corporation of the government by investing KRW 100 billion in 1974. The government granted the Corporation the authority to give tax reductions and expropriate land, and the Corporation also held the authority to take loans upon approval of the Minister. Development of heavy and chemical industrial parks of Korea was financed with development funds recognized as the special account by the central government, and Korea Industrial Complex Development Corporation operated the development projects upon consignment, easing burdens on project operators in relation to the initial investments or return of investments.

<sup>46</sup> The Local Industry Development Act defined matters related to industrial location, but the Act was not applicable to development of large-scaled heavy and chemical industrial parks. The government enacted and announced the Industrial Park Development Promotion Act in 1973.

**Figure 5-1 | Korea's Industrial Park Development Process in 1970s**



Source: The Compilation Committee of 60-year History of Korean Economy, The Korea Economy: Six Decades of Growth Development IV: Land and Environment. Korea Development Institute, 2010. p.172

Strong commitment and full support of the central government became critical backgrounds for the success of industrial park development strategies of Korea. The government aggressively invested in industrial park development and creation of specific industrial parks despite limited national budgets, in order to improve efficiency of the project operation.

## 2.2 Selection and Application of Appropriate Development Strategy for Stage of Economic Development

In 1960s when industrial parks were first supplied, Korea had almost no industrial infrastructure, and its industrial structure depended on the primary industry. The government selected the unbalanced economic growth strategy with which specific industries were intensively fostered, and applied the growth pole development approach with massive investments concentrated on a small number of areas. It was such an effective strategy as the Korean government had to build the foundation for industrialization and growth with limited resources. In 1970s, when the government focused on promotion of heavy and chemical industries, the government invested most of resources into some coastal areas and intensively promoted large-scaled heavy and chemical industrial parks. As massive investments and advanced technologies were critical for promotion of the heavy and

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chemical industries, the government strategy to build heavy and chemical industrial parks in limited areas was unavoidable and effective at that time.

Meanwhile, the growth pole development policy focused on large-scaled industrial parks widened the regional gaps, and the government has considered the balanced national development in implementing the industrial park strategy since 1980s. As existing industrial parks were concentrated on the coastal industrial districts of the southeastern area, industrial parks were newly developed mainly in the west coast and less developed areas. In 1990s when IT industries emerged and the need for technology development was raised, high-tech industrial parks were designated and built for promotion of high-tech industries. In 2000s, the government implemented the strategy to provide various specialized industrial parks<sup>47</sup> for promotion of new industries.

The government of Korea has achieved a remarkably fast economic growth by skillfully considering the levels of economic development, availability of resources and needs for industry promotion when it developed the industrial park strategies. Not all the industrial park strategies of the Korean government have been successful, but the government has effectively allocated resources and concentrated on limited areas through strategic consideration whenever shifts of the paradigm of the policy were required, which can give useful implications.

### 2.3 Development of Long-Term Vision and Well-Arranged Systems

One more success factor of Korea's industrial park development was that the government implemented the industrial park development strategies based on the foresighted approach and the detailed vision. Korea ultimately aimed to secure national competitiveness through industrial advancement and build the industrial foundation for the self-supporting economic growth, rather than simply developing specific industries and regions. Accordingly, the industrial park development policy of Korea was implemented in the long term with the comprehensive and detailed vision, closely aligned with the mid- to long-term economic development strategies and the policy to promote national strategic industries.

Unlike today's industrial parks that are completed in a few years, large-scaled heavy and chemical industrial parks built in 1970s have been developed according to the project plans for decades. For example, Pohang Industrial Park has the project period from 1975 to 2020, and Changwon Industrial Park and Yeosu Industrial Park have the project periods completed in 2015 and 2010, respectively. The plans aimed to build new industrial cities rather than industrial locations, and the plans already reflected the concept of reserved land for expansion, which is rarely reflected even now due to financial burdens, from

<sup>47</sup> As the industrial structure was changed and the knowledge-based economy emerged in 2000s, the specialized industrial parks such as Venture Industrial Parks, Science Research Park and Cultural Industrial Park were actively designated and developed.

the initial stage.<sup>48</sup> Gumi Industrial Park 2 designated in the mid-1970s was developed to promote semiconductor, PC and precision instrument industries, and Daedeok Science Park was developed to improve tech competitiveness of national industries with a focus on reinforcement of R&D capabilities. Considering the economic conditions and the industrial structure of Korea of those days, the parks were planned based on the detailed vision for following decades.

In addition, the well-arranged systems for development and support of industrial parks were also a critical success factor. It is difficult to effectively operate national projects for a long time only with strong leadership and firm commitment. Korea enacted the Local Industry Development Act and the Industrial Park Development Promotion Act in 1970s to effectively develop industrial parks, and integrated and revised applicable laws and systems according to changes of conditions. The government of Korea enacted laws and regulations applicable to development and management of industrial parks; proper allocation of industry; and clustering of industry, in order to provide the system applicable to the entire lifecycle of the industrial park development project from development to follow-up management.<sup>49</sup> In addition to improvement of laws and systems, the government established organizations dedicated to development and management of industrial parks at each government body to maximize benefits of the industrial park strategy.

## 2.4 Establishment and Efficient Operation of Management Organizations

Establishment and efficient operation of industrial park management organizations are another critical success factor of the industrial park strategy. As well-arranged systems and organizations are essential for effective development of industrial parks, systematic management systems and organizations must be provided for successful management of the parks after development. Industrial park management organizations efficiently operate industrial parks to realize the original purpose of park establishment through sales and lease of sites to businesses of desired industries; and support for production activities of resident enterprises. Korea has established the management organizations which maintained the original functions of industrial parks and attracted FDI; and maximized the benefits of the industrial location policies.

<sup>48</sup> The Compilation Committee of 60-year History of Korean Economy, *The Korea Economy: Six Decades of Growth Development IV: Land and Environment*. Korea Development Institute, 2010. p.172.

<sup>49</sup> There were laws and regulations applicable to development and management of industrial parks and factory establishment in Korea. In 1990s, the laws and regulations applicable to development of industrial parks such as the Industrial Park Development Promotion Act, the Agricultural and Fishery Income Development Promotion Act and the Local Industry Development Act were integrated into the Act on Industrial Location and Development. The Industry Allocation Act and the Industrial Park Management Act applicable to allocation and clustering of industries were integrated as the Act on Industry Placement and Factory Establishment. The Act on Industry Placement and Factory Establishment was later renamed as the Act on Activation of Industrial Clustering and Factory Establishment.

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Industrial parks refer to the planned locations developed at specific areas for clustering and promotion of selected industries, and the parks are systematically managed in accordance with the management plans which define types of businesses to be accommodated. National Industrial Parks that were built for promotion of the national strategic industries and in accordance with the economic development strategy shall be strictly managed. Since the government established Korea Export Industrial Estates Corporation in 1964 to manage Korea Export Industrial Park, the government has established corporations to manage National Industrial Parks in Changwon, Gumi, Yeosu and Banwol-Siwha. The corporations have efficiently operated industrial parks through attraction of businesses of desired industries and support for resident enterprises. In 1997, five corporations were merged as Korea Industrial Complex Corporation (KICOX), and the centralized management services have been provided for major National Industrial Parks of Korea.

As demands for industrial location policies changed due to the changing economic environment and industrial structure, the concept of industrial park management was evolved into the concept that includes support. Existing management services were confined to compliance with management standards, which was a passive role, but today's management is active one which comprehensively supports business activities of resident enterprises. Supporting resident enterprises through building of clusters and environment-friendly industrial parks and advancement of structure; and creating venues for innovations became a new mission of industrial park management organizations. Under the mission, KICOX has operated various services for value creation of businesses.

### 3. Challenges for the Future of Industrial Park

#### 3.1 Reasonable Supply of Industrial Parks Based on Demands for Industrial Locations

There were some drawbacks in the industrial park model of Korea, which has been recognized as a successful policy case. One of the representative drawbacks was the imbalanced supply and demand of industrial parks. As there were regional gaps in supply and demand of industrial parks, the demands of businesses were not appropriately satisfied. Such drawbacks can be witnessed in the cases where the objective of industrial location policies was neglected and industrial parks were oversupplied for the political purpose or development of less development areas without objective assessment on the demands and the local conditions. The cases were mostly witnessed in the mid 1990s when the local government system was introduced and the authority to designate industrial parks was transferred to local governments. As a result, many areas have suffered lowered efficiency in land use caused by parks under development for a long time or parks left vacant for a long time. In addition, as investments were not returned for a long time, local development has been hindered.



From the governmental perspective, industrial park development aims to foster strategic industries required by the nation or regions and stimulate economic development through planned supply of appropriate industrial locations. The most important requirement to achieve the goal is to supply locations required by businesses at ideal prices to help the businesses settle down in a short time. However, indiscriminate supply of industrial parks based on wrong assessment and political logics has lowered the effects of supply of industrial parks. Therefore, it is required to make decisions on supply of industrial parks by thoroughly assessing demands for locations among businesses and the capability to attract businesses of the areas when developing industrial parks.

In some cases, it is unavoidable to suffer a short-term vacancy in accordance with the national long-term strategy. Nevertheless, more objective and careful approaches shall be taken to initiate the industrial park development projects requiring huge budgets and land. Development of industrial parks must be based on a foresighted analysis on trends of demands for industrial locations in terms of time and spaces, as well as accurate demand forecasting.

### 3.2 Adjustment of Functions and Changes in Roles of Industrial Parks

Due to changes in economic environment and advancement of the industrial structure, there is a growing need for change in the roles of industrial parks that have focused on supplying industrial location to the manufacturing sector. As the knowledge-based economy has emerged, the industry is being restructured to the high-tech and knowledge-centered one, and tech development and innovations became critical factors of growth as the innovation-driven economy has emerged. In addition, the network economy is expanded, increasing values of convergence among industries and cooperation among industry, academia and research.

Industrial parks have significantly contributed to the manufacturing-centered quantitative economic growth until now, and are accounting for a significant portion of the Korean economy. Against this backdrop, sustainability of Korea's economic development will be determined by Korea's adaptation to changes in environment. As the government has led the economic development and provided visions in 1970s through heavy and chemical industry promotions strategies, the government will be able to build the foundation for new growth engines by changing its roles. The new industrial park strategy is providing the directions such as reinforcement of the knowledge service industry, expansion of R&D functions, expansion of cooperation among industry, academia and research and development of combined industrial parks.

One of the important challenges is to efficiently operate the industrial cluster policy. The industrial cluster policy aims to activate technology exchanges and transfers through reinforced cooperation among industry, academia and research. The government has

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reinforced the foundation for industry-academia-research network by region, and supported business activities in the entire cycle from tech development to product marketing by implementing the industrial cluster policy since 2005. As successful development of industrial clusters is meaningful in improving competitiveness of businesses and the nation in this innovation-led economic system, the strategy shall be successfully implemented.

Attraction and activation of the knowledge service businesses have also emerged as a new policy initiative. Driven by development of the IT industry and activation of the knowledge industrial centers, some parks already have the knowledge service sector accounting for more than half of their resident enterprises, and such a trend is expected to be expanded in the future. Accordingly, effectively responding to the paradigm shift from the manufacturing to the services has become an important challenge in terms of industrial park policy.

Finally, it is also critical to build combined parks by adding residential, R&D and support services to the existing industrial parks with a focus on production functions. The government has already adjusted the ratio of the spaces occupied by manufacturing businesses to 50% of the total areas sold, in order to attract various industries related to one another. As exchanges and cooperation among industries and functions have been activated and emerged as an important trend, it is essential to flexibly adjust the land use or services attracted to the industrial parks.

### 3.3 Development of Environment-Friendly Industrial Parks

One of the latest key initiatives of the government of Korea has been green growth through which “Environment, Energy and Economy” will be managed. Green growth strategy aims to build the low-carbon economic system by creating green future growth engines through the balance between environment and growth. Korea has focused on growth in the period of development, and finally achieved the goal of the rapid economic growth. However, it has neglected environmental sustainability as the world’s ninth largest carbon emitter. Industrial parks are the spaces well revealing double-sidedness of economic growth and environmental preservation. Korea’s industrial parks have served as the backbone of the national economy, but at the same time, they have been the largest fossil fuel consumers and greenhouse gas emitters.<sup>50</sup> Therefore, it is required to make diverse efforts to build eco industrial parks by applying the new paradigm of green growth to industrial parks.

The government of Korea has already implemented the strategy to build eco industrial parks by operating EIP (Eco-Industrial Park) Programs since 2005. The Program is the resource recycling network program where by-products, wastewater and sludge discharged from production processes are used as raw materials or energy sources for other businesses through network among businesses. Success cases where businesses recycled resources and reduced wastes through network have been already reported at Ulsan and Banwol-Siwha Industrial Parks, and the cases are gaining high recognition.

However, the EIP Program is just a part of the green industrial park development strategy that should be pursued. Eco-Industrial Parks are based on a complicated concept which combined the physical and invisible elements such as green location development and green clustering system development, in order to minimize environmental problems and achieve economic growth through promotion of green industries. For greening of industrial parks, more complicated and thoroughly prepared strategies shall be implemented. First, the resource recycling network is required to be built through activation of the EIP Program, and the infrastructure for low energy consumption shall be built through distribution of equipment with high energy efficiency. In addition, the efforts to distribute new and renewable energy, promote clustering of related industries and foster green tech businesses must be made to promote green clustering.

### 3.4 Restructuring of Deteriorated Industrial Parks

As industrial parks have been operated for almost half a century, there are many industrial parks aged 30 years or older in Korea. Those parks are losing competitiveness due to aging of infrastructure and lack of support facilities. Deteriorated parks face difficulties in migration into new production systems due to declining resident enterprises, and the overall renovation program shall be operated to satisfy today's demands for R&D, transportation, cultural and welfare facilities. Against this backdrop, the need to remodel the industrial parks through structure advancement has risen, in order to cater to the changing needs for industrial locations. The structure advancement program is based on the comprehensive and complicated concept including advancement of the business types accommodated, expansion of business support facilities, renovation of infrastructure and expansion of welfare and cultural facilities.

The fact that most of available lands have been developed and that future trends of industrial parks will be small-scaled customized parks and urban high-tech industrial parks also increases the need for restructuring of deteriorated industrial parks. It would be ideal to effectively advance the structure of aged parks adjacent to downtown areas to meet the growing demands of high-tech businesses and knowledge service businesses, rather than to develop new parks in suburban areas. Such an approach will enable co-existence of urban spaces and industrial parks, and improve the urban environment.

Recently, industrial location policies have even reflected the issue of the quality of life of workers, which is beyond the level of structural advancement for reinforcement of competitiveness of industrial parks. Considering such trends, the industrial policy strategy must be based on a highly future-oriented and long-term vision. The strategy is required not only to build the business support system but also to create the innovative environment with global competitiveness, to provide the foundation for green growth and to improve welfare of workers.



2011 Modularization of Korea's Development Experience  
Industrial Park Development Strategy  
and Management Practices

## Chapter 6

### Implications for Developing Countries

1. Development of Efficient Governance
2. Development of Models Customized for Domestic Circumstances
3. Effective Supporting System and Incentives

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# Implications for Developing Countries

## 1. Development of Efficient Governance

As described above, Korea's industrial park development strategies succeeded thanks to the efficient administration system consisted of capable economic officials as well as strong commitment of the national leader. When the government developed heavy and chemical industrial parks in 1970s, the government established a dedicated planning team led by the Prime Minister, and managed responsibilities of related government agencies including the Ministry of Construction (now Ministry of Land, Transportation and Maritime Affairs), the Ministry of Commerce and Industry (now Ministry of Knowledge Economy), the Ministry of Finance (now Ministry of Strategy and Finance) and the Ministry of Science and Technology (now Ministry of Education, Science and Technology). The government also built the system enabling consistent policy implementation. The Ministry of Construction which played a significant role in industrial park development established a new organization dedicated to development of heavy and chemical industrial parks, and the laws were enacted to provide legal ground for development of the parks. In addition, the government established Korea Industrial Park Development Corporation as the wholly owned organization to operate the development projects, and granted the authorities to give tax reductions and take loans. Such an efficient system for development of industrial parks, represented by development of the steering system, enactment of applicable laws and regulations and establishment of dedicated organizations, has significantly contributed to the success of the industrial park model of Korea.

The industrial park development strategy is a multi-layered, comprehensive strategy that is aligned with the nation's industrial strategies, HR development plans and R&D plans and that requires a huge capital. Therefore, it is required to build the steering system enabling cooperation and communications among related government agencies, and to prepare

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applicable laws and dedicated organizations prior to development of industrial parks, in order to improve effectiveness of the industrial park development strategy.

Development of the comprehensive governance system for post-development management services of industrial parks is as critical as development of the governance system for implementation of the industrial location policies at the central governmental level. This means that follow-up management is as critical as development which aims to supply industrial parks at ideal locations, since industrial parks developed for specific purposes shall be managed well so that the parks can be operated for the original purpose of establishment.

Professional support services are required to be provided so that industrial parks can attract businesses of the target industries and facilitate clustering and growth of industries and businesses. For aged industrial parks, improvement strategies shall be applied so that the industrial structure can be advanced and infrastructure can be renewed for reinforced innovation capability of the parks. In order to develop the sustainable growth model for the entire lifecycle of industrial parks, phased and comprehensive development; and management and support strategies shall be developed. Industrial park management organizations are necessary to satisfy such needs.

If the government implements the industrial park development strategy through massive investments, an expert management organization shall be established for thorough management and supervision, and the professional support system shall be developed to facilitate growth and improve competitiveness of resident enterprises. In addition, the management organizations are required to develop the measures to sustain themselves by securing profit sources, since the organizations cannot depend on the government support for decades. To this end, the efforts to balance public interests and profitability shall be made by operating various public facilities and support facilities, and developing the profit sources with support services.

## 2. Development of Models Customized for Domestic Circumstances

Korea's industrial park model succeeded as it was ideally selected and applied in consideration of the level of Korea's economic development. To successfully implement the government strategy, the strategy shall be customized for the economic conditions and other circumstances of the period. The government of Korea built industrial parks for promotion of export-driven light industries with global competitiveness in 1960s, and successfully built large-scaled heavy and chemical industrial parks by concentrating limited resources on building the foundation for industrial growth in 1970s.

The model of Korea, which was adopted decades ago, cannot be the best solution for all cases. International economic conditions have changed, and the development levels and circumstances may vary by country. One cannot expect to succeed by building high-tech

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industrial parks for promotion of IT and BT industries in a country that is even not equipped with the infrastructure for the manufacturing sector. Therefore, less developed countries and developing countries are asked to look for the most ideal models by thoroughly reviewing the domestic conditions instead of indiscriminately benchmarking the success cases of advanced countries.

Meanwhile, it is also recommended to verify whether Korea's strategy of building large-scaled industrial parks will be still valid, given the latest trends such as urbanization, emergence of high-tech industries and convergences. The government of Korea has recently developed small- and mid-sized industrial parks and urban industrial parks rather than large-scaled industrial parks to respond to the changes in the industrial structure. The countries targeting to develop industrial parks are recommended to consider the trends, and focus on developing the most ideal industrial park model for each country.

Developing models of industrial parks, given respective circumstances, and reflecting the models to the national policies are relevant to the purpose of industrial park development of each country. Development of industrial parks has two purposes, industrialization and the balanced national development. For example, Agricultural & Industrial Parks among many types of industrial parks aim to reinforce viability of agricultural areas to stimulate the balanced national development. Accordingly, it is recommended for countries with the less developed manufacturing sector and high dependence on the primary industry to develop Agricultural & Industrial Parks, since the Parks may increase income of agricultural households and actively leverage unused labor of the agricultural areas for producing processed goods using endowed resources of agricultural areas. In addition, the Parks are effective in preventing the rapid hollowing-out of agricultural and fishing areas caused by urbanization.

Although the purpose may differ, industrial parks for lease may be recommended according to circumstances. The parks for lease provide industrial locations at low rents, providing small enterprises with business opportunities and stimulating FDI. As the prices of industrial land acquisition were excessively high in Korea, weakening the business competitiveness, the government activated parks for lease at Free Trade Zones and Foreign Investment Zones. As developers cannot return the investments in a short time, the government needs to develop the parks for lease. It is recommended for the countries with high real estate prices like Korea or with urgent need to attract FDI to review the plan to develop parks for lease.

### 3. Effective Supporting System and Incentives

Given the fact that industrial park development is a project requiring a huge amount of investments, thorough feasibility studies are critical to minimize the possibility of failures. Feasibility of industrial parks refers to the period of return of investments, which is directly related to the sales performance achieved through attraction of resident enterprises. There



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were many industrial parks that have failed to return the investments due to poor sales and been vacant for a long time in Korea. Poor sales is attributable to various reasons such as high land prices, lack of transportation and logistics infrastructure and labor shortage, but the bottom line is that the industrial parks are not attractive enough to attract businesses.

Some countries have developed industrial parks to attract FDI, without thoroughly studying feasibility. In such cases, those countries face difficulties in attracting resident enterprises and leave the parks vacant, contrary to expectations. Such failures are attributable to hasty implementation of the projects in a vague hope. Accordingly, it is required to thoroughly study feasibility and verify demands for industrial park development projects prior to initiation of the projects, and strategically plan and implement the projects.

In order to activate industrial parks by effectively attracting resident enterprises, various incentives need to be provided. In the Korea's case, incentives for industrial parks were divided into incentives for developers of parks and incentives for resident enterprises. Incentives for developers target to encourage development of industrial parks of the private sector by giving financial support for facility investments, tax reductions and low-interest loans. Incentives for resident enterprises include various tax benefits and financial benefits, as well as streamlining of various approval procedures and systematic support for plant establishment.

Industrial parks designed to attract foreign enterprises rather than domestic businesses are required to provide differentiated incentives with other countries. Attraction of FDI has become a fiercer competition participated by not only less developed countries and developing countries but also developed countries. Accordingly, one cannot secure competitiveness without providing differentiated incentives with competitive edges in the global market, as well as low-cost locations.

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- KICOX ([www.e-cluster.net](http://www.e-cluster.net))



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