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2012 Modularization of Korea's Development Experience:

Airport Policy and Infrastructure Development

2013

Ministry of Land, Infrastructure and Transport

KOTI THE KOREA TRANSPORT INSTITUTE

2012 Modularization of Korea's Development Experience:

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Airport Policy and Infrastructure Development

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Prepared by	The Korea Transport Institute
Author	Yeon-myung Kim, The Korea Transport Institute, Dept. of Aviation Policy and Technology, Vice President Mi-suk Lee, The Korea Transport Institute, Dept. of Aviation Policy and Technology, Researcher Hong-woo Shin, The Korea Transport Institute, Dept. of Aviation Policy and Technology, Researcher
Advisory	Jae-yeong Ryu, KRIHS, Infrastructure Research Division, Vice President Han-yong Kim, Hansol Engineering Co., Ltd, Chairmen
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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 has 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 2010 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 40 case studies completed in 2011. Here, we present 41 new studies that explore various development-oriented themes such as industrialization, energy, human resource 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, 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 and Professor Dong-Young Kim for his stewardship of this enterprise, and to the Development Research Team 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 the KDI School of Public Policy and Management.

May 2013

Joohoon Kim

Acting President

KDI School of Public Policy and Management

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Summary

An overview of domestic airports shows that Gimpo Airport initiated its operation in 1939, followed by Gimhae and Jeju in 1946, and Gwangju and Gangreung in 1949, where civil aircrafts began their operation using the military airfield. In the 1960s, Daegu Airport (1962), Sacheon Airport (1967), Sokcho Airport (1968) and Pohang Airport (1969) started operations of civil aircrafts also using the military airfields. In 1970, Mokpo, Gunsan, Ulsan Airports opened, and in 1972, Yeosu Airport began its operation. After the Seoul Olympics in 1988, Yecheon Airport opened in 1989, followed by Chungju and Wonju Airports in 1997. In the new millennium, Incheon Airport opened in 2001, Yangyang Airport in 2002, and Muan Airport in 2007.

In terms of the construction and operation of airports, the government was in charge of each project as a part of building the national transportation infrastructure. However, this in turn undermined the efficiency of operation, and resulted in lesser support and operational effectiveness for many local airports. In the meantime, airports were allowed to freely expand the facilities and sites to accommodate increasing passengers, which entailed the need for long-term airport development plans in order to preserve the environment in the airport vicinities and protect the rights of the local community members. Consequently, the Ministry of Land, Transport and Maritime Affairs began to establish and announce basic airport development plans to improve the effectiveness of airport development projects. This plan was to be updated every five years, and was relabeled as the mid to long-term comprehensive airport development plan in 2003, the objective of which is to systematize the execution of each airport's development project and establish an efficient airport system through timely reflection of socio-economic changes.

Currently, the Ministry of Land, Transport and Maritime Affairs is in charge of airport development, construction and operation, yet Incheon International Airport is not under its

jurisdiction. Operating entities of the airports are Incheon International Airport Corporation (reflecting Incheon International Airport), and the Korea Airports Corporation, which operates other airports located in Gimpo, Yangyang, Muan, Ulsan, Yeosu, Gimhae, Daegu, Gwangju, Cheongju, Sacheon, Wonju, Gunsan, Pohang, and Jeju.

Aviation law falls under the jurisdiction of the Ministry of Land, Transport and Maritime Affairs and the Ministry of Knowledge Economy. The Ministry of Land, Transport and Maritime Affairs takes charge of eight laws and other regulations in those categories including the aviation law, law regarding aviation safety and security, Air Transport Business Promotion Law, Korea Airports Corporation Law, Incheon International Airports Corporation Law, Metropolitan Area New Airport Construction Promotion Law, airport noise prevention, and noise reduction target area support related laws, and laws on investigations into aviation and railway accidents, while the Ministry of Knowledge Economy legislates and oversees the Aerospace Industry Development Promotion Law.

The central government financially supports the development of domestic airports. However, a part of the facilities at Incheon International Airport has been pulled in from the private sector. Along with this, the financing measures for local airports should also be more advanced and diversified in order to facilitate the funding process and improve the private sector's operational efficiency. The domestic airport related laws are becoming more concrete and comprehensive, with the amendments of the aviation law in 2008.

Incheon International Airport, the success case of domestic airport development, was built in order to secure an alternative airport due to the saturation of Gimpo Airport. Incheon International Airport connects 182 cities around the globe with 79 carriers in operation in the year of 2011, serving as the hub airport of Northeast Asia, connecting Europe, the Americas, and Asia.

In contrast, local airports have suffered decrease in airborne traffic demand due to various reasons such as the construction of high-speed railways and expressways, and the global and national recession. In response, domestic carriers reduced routes and closed down deficit lines in order to cut losses, resulting in the shut-down of certain local airports. Hence, based on these cases, new airport construction must be preceded by estimating accurate air demand, reflecting the know-how of Incheon's success case, and taking future changes of the airport's function and format into consideration.

Therefore, the purpose of this study is to look into Korea's airport policy and infrastructure that may offer unique insight and set an example for countries that plan airport development in the future.

2012 Modularization of Korea's Development Experience
Airport Policy and Infrastructure Development

Chapter 1

Introduction

Introduction

Korea's airports achieved remarkable growth during the 1980s, powered by economic progress, reaching their current state. Airport development was vitalized with the increase of GDP, which called for increased air transport demands. However, the insufficiency of developmental structures and unheeded expansion of airport facility and area caused problems. In order to solve these problems, the government established a basic mid to long-term airport development plan preparing the foundation for systematic airport development. This plan, the Mid to Long-term Comprehensive Airport Development Plan, is an official plan renewed every five years. Its aim is to systematically pursue each airport's development and enhance efficiency by reflecting the socio-economic changes in a timely fashion.

With Yoido Airport in 1916 and the re-designation of Gimpo International Airport in 1958 by the presidential decree, Korea's airport system started to take concrete shape in 1971. Along with rapid economic growth and improvement of people's quality of life in the 1980s, bans on travelling abroad were deregulated in 1989. This boosted international demand by an annual average rate of 13% and domestic demand by an annual average rate of 30%, marking the world's greatest increase rate of air transport demand and opening the epic of air travel. To accommodate such increasing demands, Gimpo Airport was expanded. However, several factors including Geyang Mountain and residential sites obstructed the construction of additional runways. To make matters worse, over one hundred thousand households in the vicinity suffered from take-off and landing noises. Accordingly, among the several plans to build a new airport, Incheon International Airport officially opened on Mar. 29, 2001.

Likewise, airport development in developing countries requires powerful governmental policy support and many factors should be considered at each stage of airport planning. First, setting a plan with a specific focus is important. That is, the government should decide

its main focus of whether it be passengers or cargo, international or domestic as such factors determine the entire process.

In the case of Korea, the Korean government's firm policy decisions propelled Incheon International Airport's successful positioning as a hub airport for Northeast Asia. In contrast, local airports such as Muan and Yangyang turned out to be unsuccessful due to policy makers' ignorance in domestic transport patterns of high-speed railway and expressway network expansion. Muan International Airport also suffered from difficulties because of its unresolved relationship with Gwangju Airport. These are cases that show the importance of interconnection between aviation and airport policies.

Therefore, to help meet the needs of international organizations and developing countries, this study will provide an overall picture of airport policy and infrastructure building through airport development and policy case studies.

Following Chapter 1 Introduction, Chapter 2 will cover the history of domestic airports. In Chapter 3, cases of airport development will be looked into, and contents of airport policy execution will be covered in Chapter 4. The success factor of Incheon Airport in Chapter 5 and failure cases of local airports in Chapter 6 will be examined. Lastly, Chapter 7 will focus on suggestions and further directions for future airport policies.

Chapter 2

Domestic Airport Development Process

1. Background of Airport Development Project
2. History of Domestic Airports

Domestic Airport Development Process

1. Background of Airport Development Project

Airport construction in Korea started when aviation technology shifted its focus from military use to private sector service after World War II. However, using uneconomic military planes for private transport was very unproductive. In Korea, starting with Gimpo Airport in 1939, airports such as Gimhae and Jeju (1946), Gwangju and Gangrung (1949) began service in the private sector using the military airfields.

In the 1960s, air transport demand showed a decline. But with the advent of the jet plane in 1957, new demand for high-speed air transport increased and aviation transport rapidly grew on a global scale aided by the world-wide economic boom. In line with this, domestic airports using old military airfields like Daegu, Sacheon, Sokcho and Pohang also opened.

In the early 1970s, as soon as Mokpo, Ulsan and Yeosu Airports opened, the global economy suffered from the first oil shock in 1973, which in turn impacted the domestic aviation industry. However, the industry recovered more quickly compared to other fields, and as the low-cost competition which started in the U.S. in the late 1970s spread over the world, new air demand was created. The second oil shock which began in 1979 led to skyrocketing fuel cost and recession, and the entire aviation industry suffered a severe blow, earning the reputation of being a structurally recession-prone industry.

The world economy started to recover in 1984 and air transport also showed signs of revival. In Korea, the 1986 Asian Games, the 1988 Seoul Olympics, and the deregulation of overseas travel in 1989 boosted the industry. In 1989, Yecheon Airport began its operation.

In the 1990s, the aviation market in Europe was completely deregulated on Apr. 1, 1997 and Korea also established an open-sky agreement with the U.S. on Jun. 9, 1998.

In 1997, Chungju and Wonju Airports initiated operation.

From the late '90s and throughout the 2000s, the global air passenger market showed over 5.0% annual average increase in North America, Europe, and Asia. In Korea, Incheon Airport was planned in the beginning of 1990 in order to alleviate Gimpo's saturation and take on the hub position of global transport, which led to the opening in 2001. Yangyang and Muan Airports also opened respectively in 2002 and 2003.

2. History of Domestic Airports

2.1. After Liberation in 1945 (Quickening Period, 1950s~1960s)

In Sep. 1916, the temporary military airfield in Yoido, the first in the nation, was opened and managed by the Japanese military. After liberation in 1945, the U.S. Military government and the Air Force managed most of the airfields until jurisdiction fell under the Ministry of Transport in 1961. This was when airports began to take shape as they are now. In Dec. 1947, the Ministry of Transport proclaimed Gimpo International Airport under its direct governance for the first time, and Busan · Jeju · Gwangju Airports opened on Jan. 30, 1958.

Thereafter, the Ministry of Transport took over Gimpo Airport from the Air Force in 1961, and established the Seoul · Busan local airport management division in Oct. 1961 for airport operation. In Oct. 1961, the Ministry of Transport announced its direct management of Gimpo International Airport for the second time, opened Daegu Airport on Jul. 4, 1962, Busan International Airport on Sep. 3, 1963 (upgraded from Busan Airfield), initiated civil aircraft operation at Gangreung Airport in Dec. 1967, opened Jeju International Airport on Apr. 26, 1968 (upgraded from Jeju Airfield), began civil aircraft operation at Sokcho Airport in May 1968, opened Sacheon · Mokpo · Pohang Airfields on Feb. 13, 1970, and opened Gimhae International Airport (Busan International Airport moved to Gimhae) on Oct. 14, 1976.

During this time, aviation related issues were governed by the aviation transport division under the U.S. Military Government's Dept. of Transportation. Yet, as Korea took shape as an independent country in 1948, aviation industry related work was transferred to the Aviation department in the facility division of the Ministry of Transport, and this later became the civil aviation administration office of Korea.

In Aug. that year, the Ministry of Transport was set up, and Shin Yong-wook, the founder of Korea's private aviation transport business, established Korean National Airlines (KNA) with 100% private capital and began serving the Seoul-Busan route.

On Oct. 10, 1948, KNA was granted domestic operation rights for Seoul~Gangrung, Seoul~Gwangju~Jeju, Seoul~Ongjin, and Seoul~Busan lines from the Ministry of Transport. In addition, it opened a regular service for the Seoul-Busan line and began to transport passengers.

The next year in Feb. 1949, KNA began serving Seoul~Gangrung, Seoul~Gwangju~Jeju, and Seoul~Ongjin routes, opening networks among Seoul and various local cities for the first time in Korea. Unfortunately, the company went out of business in 1962 due to chronic deficit.

In Nov. 1960, Cho Jung-hoon of Hanjin Trade established Korean Air and showed strong initiative to serve not only the Seoul-Busan route in the beginning of 1961 but also lines to Japan and Southeast Asia. In spite of such efforts, the company had to go through disposal in 1968 due to deficits.

With the government's request, Hanjin Trade could obtain Korean National Airlines which had a capital of 1.5 billion won and a debt of 2.3 billion won for only 1.5 billion won in 1969. After the take-over, Korean Air Co. Ltd. became a private company and showed remarkable growth up to early 1988 as the main stem of Korea's private aviation sector with its efforts to open up new routes and efficient management.

In 1976, deregulation was executed in the overall industry on a wide scale as the Carter administration came into power in the U.S. Especially, from 1977, the aviation industry benefited from deregulation and liberalization. Due to the global impact of this policy, other countries started to deregulate their air transport industries in the 1980s.

Korea also saw great increase in domestic and international air demands as the economic development plans led by export-focused policies in the 1960s proved to be successful and the GDP radically increased.[1]

2.2. Opening and Growth of Gimpo International Airport (Growth Period, 1970s~1990s)

Gimpo International Airport opened when Yoido International Airport's functions were transferred to Gimpo on Jan. 27, 1958. At the time, the number of international passengers was only 22,000, while that of domestic passengers was 56,000, and international cargo 800 tons. When the international services were transferred to Incheon Airport by 2000, the number of international passengers reached 17(million) and 898,000(thousand), domestic passengers 18,729,000 and international cargo 1,891,000 tons, ranking 14th in passenger transport and 5th in cargo shipping in the world.

1. Korea Civil Aviation Development Association, 2010 Aviation Yearbook, 2010, content summary.

Gimpo International Airport, which initially had only one runway of 2,468×45m and eight buildings including concert barracks borrowed from the American Air Force, continually grew and expanded its facilities with the advancement in air transport. Later, the airport built two runways that are each 3,000×60m and 3,600×45m, an international and domestic passenger terminal that is 0.21 million and 5,695m^2, and a cargo terminal that is 0.13 million and 2,703m^2, processing 226,000 (thousand) services, 34,650 passengers and 2,250,000 tons of cargo each year.

Gimpo International Airport faithfully spearheaded air transport and grew as the hub airport of globalization, facilitating the dispatch of construction workforce overseas during the Middle Eastern construction boom in the mid '70s. Especially, the airport successfully served its role for international air transport during Korea's major international events such as the '86 Asian Games and the '88 Seoul Olympics.

Gimpo International Airport, having grown into a hub of international air transport, needed an organization to manage the expansion and operation of the facilities. Therefore, the International Airport Corporation was established in May of 1980 as a specialized public enterprise taking over the operation from the government. With the corporation, Gimpo Airport could incorporate cutting edge technologies such as installing navigation safety facility and fostering professional work force, and improve efficiency by actively responding to the drastic changes in airport environments.

In Jul. 1980, the management and operation of the airport facility was transferred from the Ministry of Transport to the International Airport Corporation. The corporation also took charge of the management of Gimhae Airport on May 16, 1983 and Jeju International Airport in Sep. 1985. On Feb. 6, 1990, Yecheon Airfield opened and the management of local airports was transferred to Korea Airport Corporation on Jun. 21, 1990. In Nov. 1991, Seoul · Busan Local Airport Management Bureau was upgraded to Seoul · Busan Local Aviation Office, establishing the current local aviation office system.

Civil aircrafts began their operations at Gunsan Airport in Dec. 1992, Wonju Airport in Feb. 1997, and Cheongju International Airport in Apr. 1997, completing the current local airport system.

In the case of air transport business, the second civil aviation was selected in accordance with the government's industrial policy. This was to enhance efficiency with competitive systems and to prevent monopoly in response to the global deregulation trend and the need for more supply to serve the increasing air demand. Kumho Group, having acquired franchise, established Seoul Air Co. Ltd. in Feb. 1988, and Korea entered a multiple carrier system. Thereafter, Seoul Air changed its name to Asiana Airlines.

In the late '80s, the 3-Low Boom (low fuel cost, dollar exchange rate, and financial interest rate), the 1986 Asian Games, and the 1988 Seoul Olympics pushed the government to largely deregulate trips abroad. As a result, air demand increased sharply.

Asiana Airlines, now part of the multiple civil aviation system, began by serving the Seoul~Busan and Seoul~Gwangju lines in Dec. 1988, and opened a Seoul~Tokyo line in Jan. 1990. Later, Asiana expanded its network to the American continent, Southeast Asia, Russia, China, Oceania, and Europe. As of Jun. 2006, with over 7,000 employees, it operated 59 aircrafts that flew to 12 domestic cities (15 lines) and 61 cities in 17 foreign countries (71 international lines were operated based on the number of passengers). Asiana Airlines grew into a huge corporation with an annual sales of over 3 trillion won.

In 1988, although airline companies obtained a business license that allowed regular air transport for domestic and international lines, in order to make the system actually work, the carrier had to acquire licenses for each route. At the time of its establishment, Asiana received its license to operate to the U.S. and Japan in the international sector, but operation licenses were issued quite after a while. For this reason, the government realized the importance of establishing policies to endow international route licenses to the second civil aviation.

Based on the proposal of related policy research institutes, the government established the 'Regular Carrier Guidance and Promotion Guideline' in Oct. 1990 which stated that second civil aviation should refrain from operating long-haul routes with higher risks and hone competitive edge by focusing on short-haul routes. The main content of this guideline was as follows; 1) whereas Korean Air's business covers the globe, Asiana should be limited to shorter routes including those of Japan and Southeast Asia, and 2) the destinations and operation service frequency for short-haul routes should be 2 to 1 for Asiana and Korean Air respectively.

Thereafter, this guideline changed to the 'Flag Carrier Competitive Capacity Reinforcement Guideline' in Aug. 1994, lessening the tight leash on Asiana. In 1988, it was discarded with the establishment of the Korea-U.S. open-sky agreement and the global and domestic deregulation trend.

Currently, under the government's multiple civil aviation system, the two carriers are following the government's policy decision to protect national profit, foster the aviation industry, and protect consumer rights. However, such route distribution system in which the business scope and profit are determined by the government's decision is not easy for the carriers to accept, and is still under debate.

As international networks increased, the Department of Foreign Affairs (now Ministry of Foreign Affairs and Trade) and the Ministry of Transport (now Ministry of Land, Transport and Maritime Affairs) made a request to join the International Civil Aviation Agreement.

Their request was accepted on Nov. 11, 1952 during the 6th General Assembly, and Korea became a member of the ICAO (International Civil Aviation Organization). According to the Chicago Convention and annex, the aviation law was drafted in 1958 with the assistance of an aviation expert in the U.S. Federal Aviation Administration, and the final draft was completed in 1959. This law was legislated by the congress in 1961, announced as Law No. 591 on Mar. 7, 1961, and took effect on Jun. 7 that year, becoming the foundation of aviation administration and transport industry. The aviation law consists of 10 chapters 143 Articles, proposing the direction of the aviation administration, safe operation measures for aircraft, air facility standards, orders for air transport business, support for aviation industry, regulations regarding carrier's domestic service initiation, regulations on domestic and other regional operations, and prohibition of harmful acts against aircraft and passengers. The government supplemented and established the aviation law enforcement ordinance and enforcement regulation, which have all been amended and executed ever since. In 2001, at the 33rd General Assembly, Korea was elected as the 33rd permanent council member (in Part III), as well as one of the 36 permanent council members at the 37th General Assembly on Oct. 5, 2010 becoming a council member for four consecutive times (previously in: 2001, 2004, 2007).[2]

2.3. Opening of Incheon International Airport (Advancement, 2000~)

On Jun. 14, 1990, as Yongjong Island was selected as the site for the new airport, preparations for building Incheon International Airport began in earnest. The basic design of the airport started on Nov. 16, 1990 and was completed on Dec. 24, 1991. Along with the ground-breaking ceremony, the Incheon International Airport Construction Project set to work on Nov. 12, 1992. The mud flat between Yongjong and Yongyu Islands was reclaimed during the two-year long sea wall construction, and became steady ground with a soil improvement process. As the site began to take shape, facility construction began. After the passenger terminal ceremony (May 1996), construction of the runway (Jan. 12), aviation security facility (Dec. 26), and transport center (Dec. 31) all took place in the following year. On Jun. 2, 1998, passenger terminal overpass construction began and the basic facilities for airport operation were completed on Jun. 30, 2000. Subsequently, Incheon International Airport Corporation conducted a comprehensive test operation and finally on Mar. 29, 2001, the historical moment of the airport's opening was celebrated nationwide. Construction of phase 1 took eight years with an annual work force of 14 million people and a total construction cost of 5 trillion 632.3 billion won. This construction surely happened on an enormous scale. After its opening, the service capacity became saturated due to the increase of air traffic demand, and construction of phase 2 began in 2002, which was successfully

2. Korea Airports Corporation, website.

completed in Jun. of 2008. The large scale project with a total project cost of 3 trillion 900 billion won (excluding private capital) was successfully completed.

With the completion of phase 1, Incheon International Airport became one of the world's most favored airports and the Northeast Asian logistics hub. With phase 2, the airport positioned itself as the best airport in the world in every aspect, including service and facility. Within only seven years after its opening, the airport became one of the world's bests, ranking 1st in global airport service assessment for 3 consecutive years, 2nd for international cargo, and 10th for international passengers. Also, Incheon was awarded the Asia-Pacific region's best airport award for airport efficiency by the World Aviation Transport Society (ATRS) in 2006, the world's best airport selected by TIME (Asia version), OAG (Official Airline Guide), and CAPA (Center for Asia Pacific Aviation) in 2006, the world's best airport by Global Traveller for 2 years in a row (2006~2007), and best cargo airport in the world by Air Cargo World. Likewise, its efficiency and service have been acknowledged as the world's best. Thus, in order to secure its position as a hub airport and take lead in the severe competition, Incheon International Airport is making every effort to create new values by actively responding to internal and external environmental changes.

In the meantime, Gimpo International Airport is also continuing its growth. In order to establish a responsible management system, the airport transferred its land, facility and buildings, which were initially government property, to a corporation system (in the form of a corporation) in Mar. 2002. Furthermore, airport management and operation experts as well as non-executive director positions were recruited for the board to improve transparency and efficiency and eventually enhance professional excellence in management. Also, the airport implemented innovative measures from the private sector, such as using a personnel system that focuses on achievements and competence, and payment systems based on work achievements.

In addition to this effort, the airport developed an omnidirectional radio range facility for navigation safety facilities and an aviation information system (core technologies for airport operation) jointly with private enterprises, to make a solid foundation in the global market. The management also surveyed customer satisfaction to identify complaints and requests and provide sophisticated high quality service in order to secure its reputation as a pleasant, clean, and comfortable airport.

In Mar. 2001, the international service sector was transferred to Incheon International Airport, and the role of Gimpo International Airport was under discussion. One solution was the Skycity Project, which redefined the airport concept to create a global tourist village by building local leisure and residential amenities using the airport's characteristics. The aim was to create profit by inducing leisure and commercial facilities such as large wholesale stores, theater complexes, convention halls, wedding halls, electronic shopping malls, golf practice

ranges, and medical facilities. When opened in 2010, the Sky Park was equipped with an environment friendly theme park, hotels, shopping facilities, and performance · exhibition spaces. Hence, we expect the airport to become an effective induction mechanism for tourists and visitors with enhanced efficiency, and be positioned as a beloved airport for the Koreans.

In Mar. 2001, the office building moved to Incheon International Airport, and civil aircraft operation began at Yangyang International Airport in Apr. 2002. In Aug. and Nov. 2002, Gangrung and Sokcho Airports were replaced by Yangyang International Airport. In Oct. 2007, the new international terminal opened at Gimhae International Airport and on Nov. 7, 2007, Muan International Airport opened. The government system underwent restructuring and the upper division was relabeled from the Ministry of Construction and Transport to the Ministry of Land, Transport and Maritime Affairs on Feb. 29, 2008.[3]

Table 2-1 | Yearly Aviation Advancements

Year	Content
1950s	- Opened Gimpo International Airport - Started the first Seoul~Busan (KNA) service
1960s	- Increased international routes - Joined ICAO - Announced the Aviation Law - Established Korea Air
1970s~1980s	- U.S. deregulation, liberation policy - Radical increase of air demand
1990s	- Began Seoul~Tokyo (Asiana) service - Established regular carrier guidance and promotion guideline → changed to flag too long a compound noun
2000s	- Opened Incheon International Airport

Source: Korea Civil Aviation Development Association, 2010 Aviation Yearbook, 2010

2.3.1. Airports in Operation

Seven civil airports are currently running (Incheon, Gimpo, Yangyang, Ulsan, Jeju, Yeosu, Muan). There are eight airports shared by the civil sector and the military (Gimhae, Daegu, Cheongju, Gwangju, Pohang, Sacheon, Gunsan, Wonju).

As shown in the table below, the categorization of airports by function shows 7 int'l airports, and 8 domestic airports out of a total of 15. In terms of ownership, 7 are civil

3. Incheon International Airports Corporation Website.

service exclusive, and 8 are shared by the civil sector and the military; over 50% of the airports are managed and operated jointly by the Ministry of National Defense.[4]

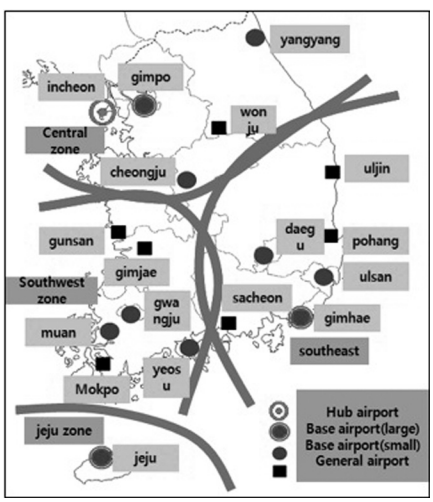
Airports that share runways between civil service and the military are Gimhae, Gwangju, Cheongju, Daegu, Pohang, Gunsan, Sacheon, and Wonju, while civil airports include Incheon, Gimpo, Jeju, Ulsan, Yeosu, Muan, and Yangyang Airports. Airports that use military runways have separate aprons, terminals, and parking facilities.

Table 2-2 | Airports by Function and Ownership

Classification		Airport
Function (15)	Int'l (8)	Incheon, Gimpo, Gimhae, Jeju, Daegu, Cheongju, Muan, Yangyang
Function (15)	Domestic (7)	Gwangju, Ulsan, Yeosu, Pohang, Gunsan, Sacheon, Wonju
Ownership (15)	Civil (7)	Incheon, Gimpo, Jeju, Ulsan, Yeosu, Muan, Yangyang
Ownership (15)	Civil and military (8)	Gimhae, Gwangju, Cheongju, Daegu, Pohang, Gunsan, Sacheon, Wonju

See: Ministry of Land, Transport and Maritime Affairs, the 4th Mid to Long-tem Comprehensive Airport System Development Plan establishment announcement, 2010

Figure 2-1 | Location of Airports in the Country



Source : Ministry of Land, Transport and Maritime Affairs, the 4th Mid-Long Term Comprehensive Airport System Plan

4. Ministry of Land, Transport and Maritime Affairs, the 3rd Mid to Long-term Comprehensive Airport System Development Plan establishment, 2006.

As for the runway, which is a key facility in the airport, Incheon Airport has 3, Gimpo 2, and military airports multiple ones in most cases.

Navigation safety facility (Naviaids), including ILS (Instrument Landing System), a wireless facility that informs the distance to the landing location, notifies the status location regarding the horizontal plane and vertical plane to the landing height during landing. Approach lighting, runway light, and taxiway light facilities are installed at each airport.

Domestic airport sites, runways, aprons, parking areas, passenger and cargo terminals are as follows:

Table 2-3 | Airport Sites and Runways

Airport	Site Area (m^2)	Runway		Airport Management
Airport	Site area (m^2)	Scale (m)	Annual Processing Capacity (no. of services)	Airport management
Incheon	11,724,000	3,750×60 3,750×60	240,000	Incheon International Airports Corporation
Gimpo	8,449,771	3,600×45 3,200×60	226,000	Ministry of Construction and Transport
Gimhae	6,518,572 (3,946,688)	2,743×45 3,200×60	200,000	Ministry of National Defense (Air Force)
Jeju	3,500,771 (3,500,771)	3,000×45 1,910×45	143,000	Ministry of Construction and Transport
Airport	Site area(m^2)	Scale (m)	Annual processing capacity (no. of services)	Airport management
Daegu	6,617,283 (171,308)	2,755×45 2,743×45	140,000	Ministry of National Defense (Air Force)
Gwangju	5,854,564 (150,599)	2,835×45 2,835×45	140,000	Ministry of National Defense (Air Force)
Ulsan	919,977	2,000×45	60,000	Ministry of Construction and Transport

Airport	Site Area (m^2)	Runway		Airport Management
Cheongju	6,739,778 (1,909,645)	2,743×60 2,743×45	140,000	Ministry of National Defense (Air Force)
Yangyang	2,281,353	2,500×45	43,000	Ministry of Construction and Transport
Yeosu	1,327,834	2,100×45	60,000	Ministry of Construction and Transport
Mokpo	- (623,384)	1,600×30	60,000	Ministry of National Defense(Navy)
Sacheon	4,039,465 (45,299*)	2,743×45 2,743×45	165,000	Ministry of National Defense (Air Force)
Pohang	4,035,563 (2,478,709)	2,133×45	100,000	Ministry of National Defense (Navy)
Gunsan	- (142,803*)	2,743×45 2,454×23	140,000	Ministry of National Defense (U.S. Air Force)
Wonju	5,675,650 (31,960*)	2,743×45	115,000	Ministry of National Defense (Air Force)

Note: 1. In the case of airports shared by civil service and military, the block above the site area refers to total site area ('-' means unidentified), and the ( ) in the block below shows site area determined as urban planning facility

2. The * in the ( ) means that it has not been determined as urban planning facility, and the area is identified by Korea Airports Corporation for maintenance and management

Source: Ministry of Land, Transport and Maritime Affairs Airport Development team, Airport facility statistical data management and operation guidelines, Mar. 2005

Table 2-4 | Aprons and Parking Areas

Airport	Aprons		Parking area	
Airport	Area (m^2)	Simultaneous Standing Capacity (units)	Area (m^2)	Simultaneous Standing Capacity (units)
Incheon	Passenger: 1,267,000 Cargo: 430,000	60 24	738,000	16,464
Gimpo	1,199,267	74	313,018	8,804
Gimhae	382,594	22	81,848	2,539
Jeju	257,290	18	49,848	1,519
Daegu	41,582	5	25,117	1,097
Gwangju	44,300	7	38,300	945
Ulsan	33,605	4	26,860	533
Cheongju	52,173	5	36,095	1,058
Yangyang	45,250	4	18,466	498
Yeosu	41,868	5	25,548	554
Mokpo	9,600	2	5,083	207
Sacheon	13,140	2	16,400	320
Pohang	32,617	5	18,661	530
Gunsan	13,758	2	10,421	387
Wonju	5,808	1	2,006	90

Source: Ministry of Land, Transport and Maritime Affairs Airport Development team, Airport facility statistical data management and operation guidelines, Mar. 2005

Table 2-5 | Passenger and Cargo Terminals

Airport	Passenger Terminal			Cargo Terminal	
Airport	Classification	Area (m^2)	Annual Capacity (service grade-III, 10,000 persons/year)	Area (m^2)	Annual Capacity (10,000t/year)
Incheon	Domestic	496,000	3,000	-	-
Incheon	Int'l	496,000	3,000	129,000	270
Gimpo	Domestic	76,045	3,043	30,914	62
Gimpo	Int'l	49,698	398	95,556	82
Gimhae	Domestic	37,282	1,269	9,685	19

Airport	Passenger Terminal			Cargo Terminal	
Gimhae	Int'l	19,514	166	7,961	6.9
Jeju	Domestic	32,292	807	15,652	31
Jeju	Int'l	15,825	117	1,922	1.7
Daegu	Domestic	11,985	257	844	1.7
Daegu	Int'l	14,731	114	-	-
Gwangju	Domestic	10,561	294	2,765	5.5
Gwangju	Int'l	-	-	-	-
Ulsan	8,886		241	-	-
Cheongju	Domestic	8,000	189	1,667	3.3
Cheongju	Int'l	14,406	126	590	0.5
Yangyang	Domestic	10,083	207	-	-
Yangyang	Int'l	16,047	110	-	-
Yeosu	13,328		272	803	1.6
Mokpo	1,584		30	-	-
Sacheon	4,692		101	-	-
Pohang	11,707		385	-	-
Gunsan	2,852		44	-	-
Wonju	1,596		25	-	-

Source: Ministry of Land, Transport and Maritime Affairs Airport Development team, Airport facility statistical data management and operation guidelines, Mar. 2005

a. Incheon Airport

Incheon Airport, the biggest international airport in Korea is located at Yongjong Island in Jung Gu, Incheon City. Opened on Mar. 29, 2001, phase 3 is now in progress to serve the air demand.[5]

At present, Incheon Airport has become the hub airport of Northeast Asia, connecting Europe, the Americas, Asia, and Southeast Asia. In fact, the airport has achieved a transit performance of 5.66 million, which is one of the key indexes of being a hub airport. Once again, Incheon Airport is strengthening its position as the Northeast Asian hub airport.

The division of Incheon Airport and Gimpo Airport's role:

- Aug. 1997: Each airport took exclusive roles. Gimpo Airport was in charge of domestic services, and Incheon Airport took charge of int'l services.

5. Korea Civil Aviation Development Association, 2010 Aviation Yearbook, 2010, Airport History.

- Mar. 2001: Incheon Airport opened and Gimpo Airport's int'l services were transferred to Incheon Airport.
- Jun. 2003: Korea-Japan summit, Gimpo-Haneda service was discussed.
- Nov. 2003: Gimpo-Haneda charter plane began its service (Gimpo Airport radius) within 1,500km.
- Aug. 2005: Gimpo-Haneda charter plane service frequency increased to 8 · day, round trip.
- Apr. 2007: China's Prime Minister Wēn Jiābǎo visited Korea and Gimpo~Shanghai Honggiao service was discussed.
- Oct. 2007: Gimpo-Honggiao charter plane began its service.
- Aug. 2008: Gimpo-Haneda route agreed to add 12 round trip routes from Oct. 2010.
- Nov. 2008: Government official order was modified to allow service to foreign airports within 2,000km radius from Gimpo Airport.
- Dec. 2008: Gimpo-Osaka charter plane began its service.
- May. 2010: Gimpo-Nagoya charter plane began its service.
- Jul. 2011: Gimpo-Beijing charter plane began its service.

While Incheon Airport is Korea's gateway airport for international flights, it also serves as a transit point for domestic flights.

b. Gimpo Airport

Gimpo Airport was built in Gwahe Dong in Gangseo Gu, Seoul, in 1939. It was renamed as Gimpo International Airport on Jan. 31, 1958 after Korea and the U.S. Air Force established a Joint Usage Agreement in Dec. 1957, and the jurisdiction was completely transferred over from U.S. Air Force 5 on Jul. 1, 1961. In particular, the year 1971 has a significant meaning as it is when the airport became Korea's first international gateway. As the international service was transferred to Incheon International Airport in 2001, the airport only ran domestic flights. Later on, based on Korea Airports Corporation and the Ministry of Land, Transport and Maritime Affairs' discussion, international shuttles to China (2007) and Japan began their services.

After transferring int'l service to Incheon Airport, Gimpo Airport was in charge of domestic flights only. However, as the number of routes at Gimpo Airport fell too short compared to the airport's capacity, it was pointed out to be wasteful. Accordingly, Korea Airports Corporation (the operating party) set this issue with the Ministry of Construction and Transport by operating flights to Tokyo Haneda in 2003 (Japan), Shanghai Honggiao Int'l Airport in 2007 (China), Osaka Kansai Int'l Airport in 2008 (Japan), and Beijing

ShŏudūInt'l Airport in 2011 (China). Still, Gimpo airport is the hub airport for domestic flights, along with Jeju and Gimhae Airports.

In the future, Gimpo Airport will be used as the base airport for low cost carriers, as LCCs are increasingly servicing short-haul routes and the boarding rate at Gimpo is showing more increase than that at Incheon Airport.

c. Jeju Airport

Jeju Airport operates the air demand for Jeju Island, Korea's no. 1 tourist attraction. It opened as an army airfield in Jan. 1942 and, civil aircrafts began service under the U.S. Military Government in 1946. On Apr. 26, 1968, Jeju Airfield was upgraded to an international airport. In order to fulfill this purpose, runways and passenger terminals were built and expanded to its current status.

Jeju Airport is Korea's representative airport that ranked 1st for domestic lines for 3 consecutive years (based on the no. of passengers) from 2009 to 2011, and 4th for international lines, following Incheon, Gimpo, and Gimhae. Domestic services run to Gimpo and Gimhae, and int'l flights serve ten cities which include China, Japan, and Hong Kong. Because of the island's geographical condition, the demand for the airport is expected to continuously increase. For this reason, there are future plans to expand the current airport or build a new one when the facility reaches its saturation.

d. Gimhae Airport

Gimhae Airport began transporting civilians in 1946 using Suyong Airfield in Suyong Gu, Busan, and was renamed as Busan Airfield on Jan. 30, 1958. On Sep. 30, 1963, the Ministry of Transport upgraded the airfield to a formal international airport. In Aug. 1976, the site moved to the Air Force airfield in Daejeo 2 Dong in Gangseo Gu, Busan, and currently the international airport is serving both domestic and international lines.

Gimhae Airport serves the demand in the Southeast region. Domestic services run to Gimpo and Jeju, and int'l services run to Southeast Asia. The saturation point is expected to occur before 2020, and the need for a new airport is arising.

e. Other Airports

Daegu Airport opened in 1962, using the Air Force airfield at Jijeo Dong, Daegu City. In 1994, the airport began international services to Japan, Fukuoka. Yet, the demand for Gimpo decreased after the Seoul-Busan High-speed Railway (KTX) initiated in 2004. Subsequently, excluding the Jeju line, the domestic lines were shut down and the Gimpo line for international transits was replaced by the Incheon line.

Chungju Airport opened on Apr. 28, 1997 using the Air Force airfield at Nesu Eup in Chungwon Gun, Chungchungbuk Do, and currently services both domestic and international lines. On Sep. 23, 2011, the airport started to operate cargo planes, which was the first among the 14 local airports. On Feb. 1, 2012, the management rights were sold to a private company, again, first among all airports in Korea. The facility is still managed by the government, but the new management will begin its operation in Feb. 2013.

Gwangju Airport began running civil aircrafts on Feb. 10, 1949 using the Air Force airfield at Songjung Dong, Gwangsan Gu in Gwangju City. International service began in Jun. 1995, but this service moved to Muan Airport in May 2008. Now, only domestic lines are being operated.

Muan Airport is an international airport that serves the Honam Area, located at Mangun Myun, Muan Gun in Junlanam Do. It opened on Nov. 8, 2007 to replace Gwangju and Mokpo Airports. The domestic lines from Mokpo were transferred over on Nov. 8, 2007, and international lines from Gwangju on May 28, 2008, which are currently in operation.

Yangyang Airport is an international airport servicing the Yungdong Region, located at Sonyang Myeon, Yangyang Gun in Gangwon Do. It opened on Apr. 3, 2002, fusing the functions of Gangrung and Sokcho Airports. Routes were repeatedly shut down and reopened ever since, but domestic lines and non-regular international lines are now in operation.

Ulsan Airport is a private airport located at Songjung Dong in Ulsan City. It opened in Nov. 1970, suspended its operation in Jan. 1973, and reopened in Jul. 1984.

Wonju Airport began to operate on Feb. 28, 1997, using the Air Force airfield at Gokgyo Ri, Hwengsung Gun in Gangwon Do. The airport is currently in operation.

Yeosu Airport is at Yulchon Myeon, Yeosu City in Junlanam Do. The Ministry of Transport built runways, and began operation on May 23, 1972. Operation was suspended from Jun. 1, 1976 to Aug. 2, 1977, but the airport continued to expand, and is currently running domestic lines.

Sacheon Airport began its operation on May 1, 1967 using the Air Force airfield at Guam Ri Sacheon City in Gyungsangnam Do, and is currently in operation.

Pohang Airport began to operate on Jul. 20, 1969 using the Navy airfield at Donghe Myeon Nam Gu Pohang City in Gyungsangbuk Do. It suspended its operation on Sep. 16, 1973 due to the oil shock, and reopened on Jul. 1, 1986. Currently the airport is running its services.

Gunsan Airport opened in Aug. 1970 using part of the U.S. Air Force airfield at Okseo Myeon Gunsan City in Junlabuk Do. In Mar. 1974, it closed down to save fuel, but reopened on Dec. 14, 1992 and is currently running its services.

Cheongju Airport focuses on int'l cargo planes serving the central region, while Muan Aiport serves the air demand in the Southwest region. The rest covers the other zones. [6]

2.3.2. Airports which Functions are Transferred or Closed

Sokcho and Gangrung Airports were closed with the opening of Yangyang Airport. Sokcho Airport opened on May 5, 1968, using the army airfield in Sokcho City, Gangwon Do, and closed down when Yangyang opened. Gangrung airport opened on Feb. 1, 1949 using the Air Force airfield in Gangrung City Gangwon Do, but suspended its operation from Jun. 10, 1975 to Jul. 10, 1986 as the number of passengers decreased with the opening of the Yongdong Expressway (Oct. 1975). The civil airport finally closed down when the functions were moved to Yangyang Airport on Apr. 3, 2002. Afterwards, its function as the Air Force airfield was restored.

Mokpo Airport was closed down with the opening of Muan Airport. Built by the Ministry of Transport in Mokpo City Junlanam Do, the airport began its operation on Mar. 5, 1970, closed down on Jun. 7, 1974, and transferred its management rights to the Navy on May 11, 1976. Along with the demands of the local residents and the economic growth in the '80s, the airport reopened on Jul. 1, 1992. However, as functions transferred to Muan Airport, it closed down again on Nov. 8, 2007.

Yecheon Airport opened on Dec. 16, 1989 using the Air Force airfield located at Yucheon Myeon Yecheon Gun in Gyeongsangbuk Do. It closed down in May 2004 due to decreasing demands.

Uljin Airfield, located at Gisung Myeon Uljin Gun in Gyeongsangbuk Do, was to be built as a domestic airport and opened in 2003, but the plan was abandoned due to shortage of demand. Eventually, the airport was transformed into the 'Uljin Aviation Training Center' on Jul. 8, 2010.[7]

6. Reference from Airport policy, Jaeman Lee, 2012.

7. Lee Jae man, interview.

Table 2-6 | Yearly Airport Opening and Closing Status

Year	Airport	Closure	Reopening	
'30~'50	Gimpo (1939), Jeju (1942), Gwangju (1948), Gimhae (1958), Gangreung (1958)	-	-	5
'60~'70	Sokcho (1961), Daegu (1961), Mokpo (1969), Sacheon (1969), Gunsan (1970), Pohang(1970) Ulsan (1970), Yeosu (1971), Cheongju (1978)	-	-	14
1972	14 airports	Mokpo (Honam Expressway → decrease in demand)	-	13
1974	13 airports	Ulsan, Gunsan (to save fuel)	-	11
1984	11 airports	-	Ulsan	12
1989	12 airports + Yecheon	-	-	13
1992	13 airports	-	Gunsan, Mokpo	15
1997	15 airports + Wonju	-	-	16
2001	16 airports + Incheon	-	-	17
2002	17 airports + Yangyang	Gangreung, Sokcho (Yangyang opens)	-	16
2004	16 airports	Yecheon (Seoul-Busan High-speed Railway, Central Expressway → decrease in demand)	-	15
2007	15 airports + Muan	Mokpo (Muan opens)	-	15

Source: Each Airport's Website

Chapter 3

Airport Development System

1. Airport Project System and Contents
2. Airport Development Operation Organization and Related Laws
3. Financing Measures

Airport Development System

1. Airport Project System and Contents

1.1. Airport Plan Formulation System

1.1.1. Background of Airport Plan Formulation

In the past, airport construction and operation was led by the government (as part of the national transport infrastructure).

Unlike private goods supplied through the open market, airport development and operation in Korea showed the form of public goods which was shared by the people and supplied with government support. In this context, efficiency was not fully considered. For this reason, the needs of many local airports' operation and financial support were not met.[8]

Airports could freely expand the facilities and sites to accommodate increased passengers without any regulation. Accordingly, there was a need for long-term airport development plans in order to protect the environment and residents' rights due to such inordinate expansion and development.

Therefore, the Ministry of Land, Transport and Maritime Affairs established and announced the Basic Airport Development Plan on Jul. 1, 1992 in order to effectively lead airport development projects. This plan was to be updated every five years by law, and was amended as the Mid to Long-term Comprehensive Airport Development Plan in 2003. Especially, it aimed to establish an efficient airport system by reflecting the socio-economic changes in a timely manner and systemize the development projects of individual airports.

8. Korea Transport Institute, Study on Local Airport Operation System Improvement Measures, 2005, p.23.

1.1.2. Airport Development Plan Execution System

a. Characteristics of the Airport Development Plan

According to Aviation Law Article 89, it is a lower tier plan for aviation policy, established by Article 2 in Aviation Law. In 2003, it was amended into the Mid to Long-term Comprehensive Airport Development Plan to establish an efficient airport system by reflecting the socio-economic changes in a timely manner and systemizing the development projects of individual airports.

b. History of the Airport Development Plan

<Table 3-1> below compares the airport development plans before and after the amendment of the aviation law. Before the amendment, airports were only developed when necessary, whereas after the amendment, airport development was in accordance with the airport development project procedures.

As for airport plans based on the amended aviation law, the 1st Mid to Long-term Basic Airport System Development Plan was established and announced on Apr. 19, 1994; the 2nd Mid to Long-term Basic Airport System Development Plan on Dec. 30, 2000; the 3rd Mid to Long-term Basic Airport System Development Plan on Nov. 24, 2008; and the 4th Mid to Long-term Basic Airport System Development Plan on Jan. 5, 2011. Each airport sets up its own basic execution plan for airport development based on the Mid to Long-term Airport System Development Plan.

Table 3-1 | Airport Development Project Plan

Classification	~1994	1994~Present
Basis	Aviation Law	Aviation Law (Amended)
Development	- No plan - Develop airports when necessary	- 1st Mid to Long-term Basic Airport System Development Plan (Apr. '94) -2nd Mid to Long-term Basic Airport System Development Plan (Dec. '00) - 3rd Mid to Long-term Basic Airport System Development Plan (Nov. '06) - 4th Mid to Long-term Basic Airport System Development Plan (Jan. '11) Establishes and proceeds plans according to 〈Table 3-2〉 "Airport Development Procedures"

Source: Aviation Law, the 1st~4th Airport Development Plan

c. Key Contents of the Airport Plan

As the first airport system development plan, the 1st Mid to Long-term Basic Airport Development Plan aimed for mid to long-term planning from 1995 to 2000. The plan was a step by step investment plan based on the analyses of future demand forecasting and economic feasibility. To be more specific, key contents included analysis of changes in the aviation environment, air demand forecast, analysis of domestic airports status and problems, formulation of mid to long-term progress for airport development, mid to long-term basic plans for each airport and measures for facility supplementation, and mid to long-term investment plans. Furthermore, the plan categorized functions of the airports into the international, hub, and local; international airports included Gimpo, Gimhae and Jeju; hub airports included Cheongju, Daegu, Muan and Yangyang; and the rest as local airports. Among the airports, 16 airports were categorized by seven zones; the metropolitan area included Gimpo and Incheon; the Busan area Gimhae, Ulsan and Sacheon; the Jeju area Jeju; the central area Gunsan; the Yongdong area Gangreung, Sokcho; the Honam area Gwangju, Mokpo and Yeosu; and the Gyeongbuk area Daegu, Yecheon and Pohang Airports.

The 2nd Mid to Long-term Basic Airport Development Plan covered 2000 to 2020, and oversaw a 20 year period for comprehensive development. Mid-term for air transport demand covered 2000 to 2010, and long-term for phase 2 from 2011 to 2020. Project plans such as facility demands were planned up to 2020. An important point worth of notice is that demands at local airports were decreasing due to the foreign currency crisis. The key contents of this plan included analysis of changes in the aviation environment, air demand forecast, analysis of domestic airports' status and problems, formulation of mid to long-term progress for airport development, mid to long-term basic plans for each airport and measures for facility supplementation, construction of light aircraft aerodrome and operation measures, and mid to long-term investment plans. Functions of the airports were categorized into the hub, gateway, local and others; hub airports included Incheon; gateway airports Gimpo · Gimhae · Jeju; local hub airports Cheongju · Daegu · Muan; and the rest as local or other airports. 21 airports were categorized by seven zones; the metropolitan area included Gimpo and Incheon; the Busan area Gimhae, Ulsan and Sacheon; the Jeju area Jeju; the central area Wonju and Cheongju; the Yongdong area Gangreung, Sokcho and Yangyang; the Honam area Gwangju, Mokpo, Yeosu, Muan, Jeonju and Gunsan; and the Gyeongbuk area Daegu, Yecheon, Pohang and Uljin Airports.

The 3rd Mid to Long-term Basic Airport Development Plan covered 2006 to 2011, and oversaw a 5 year period for comprehensive development. Air demand forecast and project plans such as facility demand covered 20 years up to 2025. However, for project plan reviews including new airports, the target year was 10 years in the future. The key point of

this time was that demands were radically decreasing due to the construction of high-speed railways and expressways. Key contents included basic plans for airport development, air demand analysis and forecast, airport operation and vitalization plans, mind to long-term comprehensive development plans for airports in each zone, facility scale and airport layout plans, airport equipment and facility improvement measures, and step by step construction investment plans. This time, the airport functions were categorized into the hub, base and general airports; hub airports included Incheon; base airports were Gimpo · Yangyang · Gimhae · Jeju · Cheongju · Daegu · Gwangju · Muan · Ulsan · Yeosu; and the rest were general airports. 18 Airports were zoned into 4 areas; the central area included Gimpo · Incheon · Wonju · Cheongju · Yangyang; the Southwest included Gwangju · Yeosu · Muan · Mokpo · Gunsan · Gimje; the Southeast Area included Daegu · Yecheon · Pohang · Ulsan · Uljin · Sacheon; and the Jeju Area included Jeju Airport.

The 4th Mid to Long-term Basic Airport Development Plan covered 2011 to 2015, and oversaw a 5 year period for comprehensive development. Air demand forecast covered 20 years up to 2030. Based on facility demand analysis, project plans such as facility demand leaded up to 2030 as well. Key contents of this plan included changes and prospects of air transport environment and future society, air demand forecast, airport development policy plans, airport investment plans, mid to long-term airport development plans for each airport, and development of light aircraft aerodrome and floating aerodrome, which was a new move. During this period, airports were categorized by three functions (hub, base, and general); hubs included Incheon, bases included Gimpo · Gimhae · Jeju · Cheongju · Daegu · Muan; and the rest were general airports. Once again, 15 airports were zoned into 4 areas; the central area included Gimpo · Incheon · Wonju · Cheongju · Yangyang, the Southwest included Gwangju · Yeosu · Muan · Gunsan; Southeast included Daegu · Gimhae · Pohang · Ulsan · Sacheon; and the Jeju included Jeju Airport.[9]

9. Ministry of Land, Transport and Maritime Affairs, the 1st ~ 4th Airport System Development Mid to Long-term Comprehensive Plan establishment, 1994~2011.

2. Airport Development Operation Organization and Related Laws

2.1. Airport Development and Operation

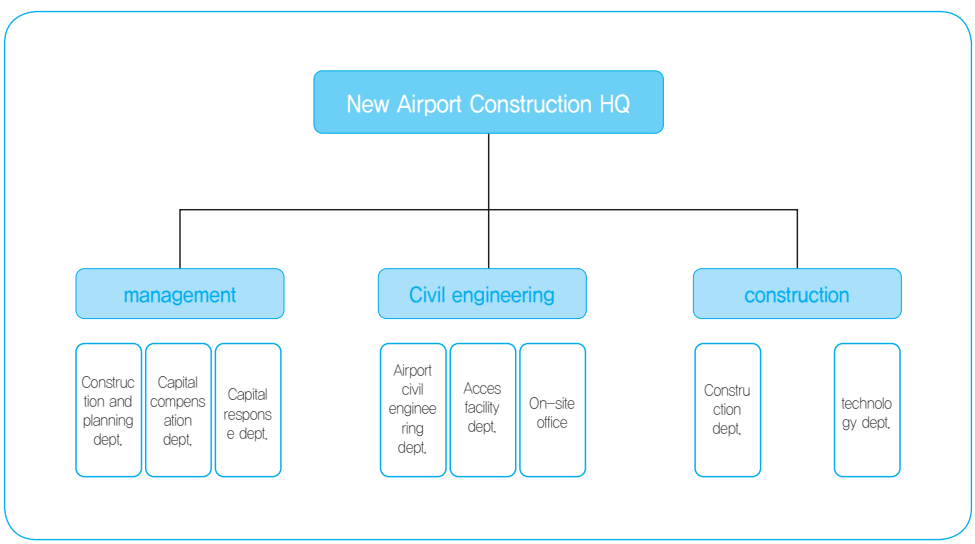
2.1.1. Airport Development

In 1948, the aviation department opened under the Ministry of Transport's Department of Transport, and the government led the construction and operation of airports as part of the national infrastructure. The Ministry of Land, Transport and Maritime Affairs is still in charge, except for the case of Incheon Airport.

Korea Airport Corporation amended the regulation of the organization for the construction of the new international airport in Incheon, producing an organization as shown in [Figure 3-1].

As seen in the figure, under The New Airport Construction HQ, there are three major teams: management, civil engineering, and construction. More specifically, the organization consists of one office, six divisions and 26 departments, including the testing office, construction and planning dept., capital compensation dept., airport civil engineering dept., access facility dept., construction dept., and technology dept.[10]

Figure 3-1 | Organization of New Airport Construction HQ



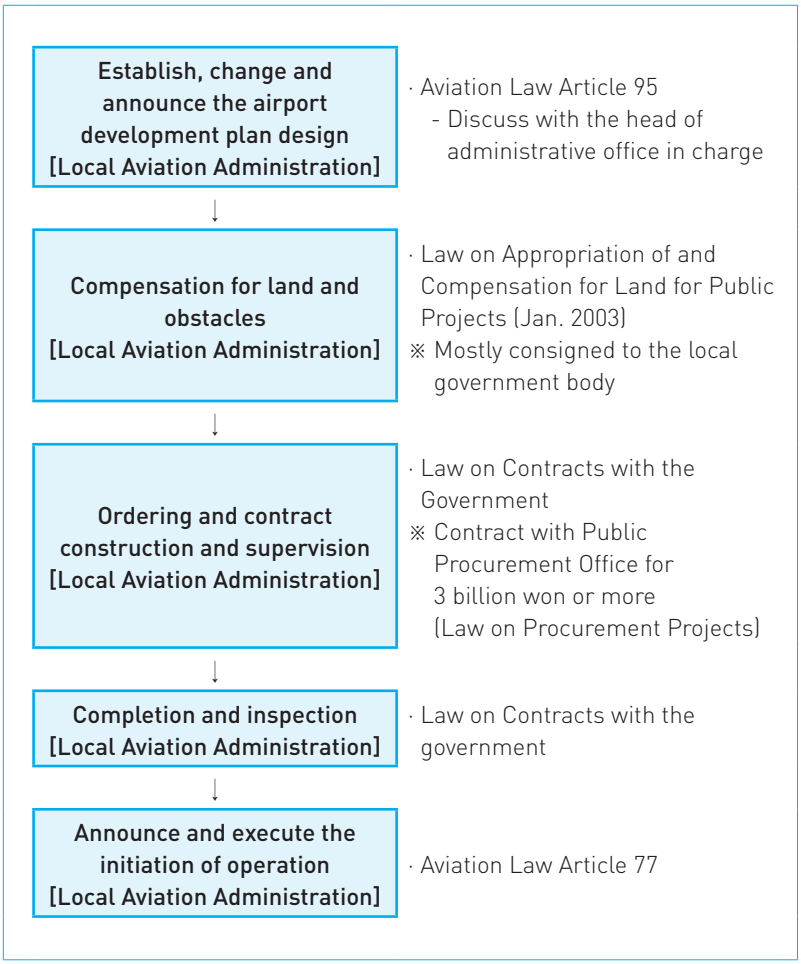
Source: Korea Airports Corporation, Korea Airport Corporation 25th, 2005

10. Korea Airports Corporation, Korea Airports Corporation 25th, 2005, p.273.

The process of airport development was as follows: establishment and announcement of the airport development plan (Ministry of Land, Transport and Maritime Affairs) → establishment of the execution plan, announcement of its change (local Aviation Administration) → compensation for land and obstacles (local Aviation Administration) → ordering for building and supervision, contract, completion, and inspection (local Aviation Administration) → announcement and execution of initiating the operation (local Aviation Administration).

Table 3-2 | Execution Procedures of the Airport Development Project

Establish the mid to long-term airport development plan [Ministry of Land, Transport and Maritime Affairs]	· Aviation Law Article 29 - Discuss with the head of related central administration office	→ All airports
Establish mid to long-term airport development plan [Ministry of Land, Transport and Maritime Affairs]	· Aviation Law Article 29 - Discuss with the head of related central administration office	
↓		
Announce the mid to long-term airport development plan [Ministry of Land, Transport and Maritime Affairs]	· Aviation Law Article 91 - Official gazette announcement	
Announce mid to long-term airport development plan [Ministry of Land, Transport and Maritime Affairs]	· Aviation Law Article 91 - Official gazette announcement	
↓		
Establish (change) the basic airport development plan [Ministry of Land, Transport and Maritime Affairs]	· Aviation Law Articles 89, 90 - Discuss with the head of related central administration office	
↓		
Announce the basic airport development plan [Ministry of Land, Transport and Maritime Affairs]	· Aviation Law Article 91 - Official gazette announcement	
↓		



Source: Board of Audit and Inspection, Airport supplementation Project Execution Status, Jun. 2004

The execution process of the airport facility project currently falls under the regulation on the installation of airfields within the domestic aviation law and enforcement ordinance. Detailed geometric structures are to be in accordance with the design standard of ICAO (International Civil Aviation Organization) and FAA (Federal Aviation Administration) based on the given airport's conditions. According to Aviation Law Article 2, the objective, grounding law, application time, access method, accessing organization, and guideline for the preliminary feasibility study and assessment are all applied as in the case of ground transportation.

The grounding law and governing division for each phase is as shown in <Table 3-3>, which is similar to that of ground transportation.

Table 3-3 | Execution Procedures of the Airport Facility Project

Basic conception [Ministry of Land, Transport and Maritime Affairs]	· Construction technology management law enforcement ordinance Article 28 Clause 5
↓	
Prelim. feasibility study [Ministry of Strategy and Finance]	· National finance law enforcement ordinance Article 13
↓	
Feasibility assessment [Ministry of Land, Transport and Maritime Affairs, Korea Airports Corporation, Incheon International Airports Corporation]	· National consolidation system effectualization law Article 18
↓	
Basic plan [Ministry of Land, Transport and Maritime Affairs, Korea Airports Corporation, Incheon International Airports Corporation]	· Construction technology management law enforcement ordinance Article 38 Clause 7
↓	
Basic design [Korea Airports Corporation, Incheon International Airports Corporation]	· Construction technology management law enforcement ordinance Article 38 Clause 9
↓	
Final design [Korea Airports Corporation, Incheon International Airports Corporation]	· Construction technology management law enforcement ordinance Article 38 Clause 11
↓	
Construction [Korea Airports Corporation, Incheon International Airports Corporation]	· Construction technology management law enforcement ordinance Article 38 Clause 14
↓	
Completion [Korea Airports Corporation, Incheon International Airports Corporation]	· Construction technology management law enforcement ordinance Article 38 Clause 16
↓	
Post assessment · repair · maintenance and management [Korea Airports Corporation, Incheon International Airports Corporation]	· Construction technology management law enforcement ordinance Article 38 Clause 18

Source: Korea Transport Institute, Study on Airport Facility Projects' Feasibility Assessment Methodology Improvement, 2010

2.1.2. Airport Operation

Operators of domestic airports are as follows; purely civilian airports such as Gimpo, Jeju, Yangyang, Muan, Ulsan, and Yeosu Airports; Gimpo International Airport Corporation (currently Korea Airports Corporation) that was established in 1980 in charge of Gimhae, Daegu, Gwangju, Cheongju, Sacheon, and Wonju Airports; the Air Force in charge of Pohang which is run by the Navy, and Gunsan by the Korea Airports Corporation jointly with the U.S. Air Force. Before transferring the airport operation rights to Korea Airports Corporation, Seoul and Busan local Aviation Administrations took charge of airport expansion, repair and maintenance, aircraft movement area management, parking area management, safe operation management, and national property management. After the transfer, Korea Airport Corporation is managing the expansion of facilities including the operation of aviation light facility and aviation radio beacon facility, passenger service and aircraft noise compensation with the approval of the Minster of Land, Transport and Maritime Affairs. Meanwhile, Incheon International Airport, opened in 2011, is run independently by Incheon International Airports Corporation according to the Incheon International Airports Corporation Law legislated and put into effect on Feb. 1, 1999.

Table 3-4 | Yearly Airport Operation

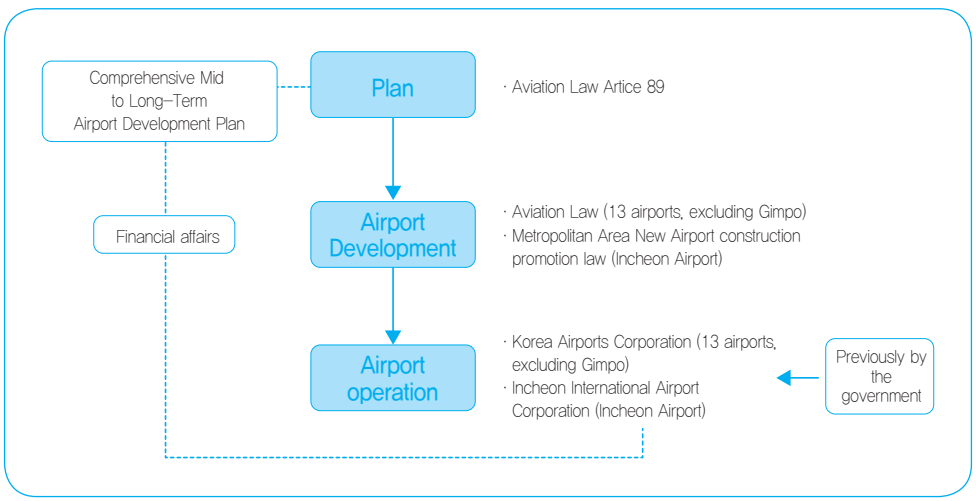
Year	Operation	Airport
1948	Ministry of Transport Facilities Management Bureau Air Transport Division	Each Domestic Airport
1961	Seoul Aviation Seoul Local Aviation Administration (currently Seoul Aviation Administration)	Gimpo, Sokcho, Gangreung Airports (areas north to Daejeon)
1961	Busan Local Aviation Administration (currently Busan Aviation Administration)	Gimhae, Jeju, Gwangju, Daegu, Yeosu, Sacheon, Pohang, Ulsan, Yecheon Airports (areas south to Daejeon)
1980	International Airport Corporation	Gimpo Int'l Airport operation rights transferred (Jul., 1980) Gimhae Int'l Airport operation rights transferred (May, 1983) Jeju Int'l Airport operation rights transferred (Sep., 1985)
1990	Korea Airport Corporation	Gwangju, Daegu, Yeosu, Sokcho, Gangreung, Sacheon, Pohang, Ulsan, Yecheon Airports
1999	Incheon International Airports Corporation	Incheon International Airport

Year	Operation	Airport
2002	Korea Airports Corporation (changed name to International Airport Corporation)	Gimpo, Jeju, Yangyang, Muan, Gimhae, Daegu, Cheongju, Ulsan, Yeosu, Gwangju, Sacheon, Pohang, Gunsan, Wonju Airports

Source: Ministry of Land, Transport and Maritime Affairs, The 2nd Mid to Long-Term Basic Airport System Development Plan Establishment Study, Dec. 1999, Content Summary

Planning, development and operation schematics based on the airport development plan are shown as below.

Figure 3-2 | Airport Development Procedure



The following section looks at Korea Airports Corporation and Incheon International Airports Corporation, which are in charge of the management and operation of domestic airports.

a. Korea Airports Corporation

According to the International Airport Corporation Law Article 3219, Korea Airports Corporation was established as an International Airport Corporation by the government in 1980. The intent was to efficiently construct, manage, and operate airports in the country. From 1983 on, fourteen branches in Busan, Jeju, Daegu, etc. were opened, and in 1994 and 1999, the route facility HQ and navigation radio beacon were taken over and operated. In 2001, Incheon Int'l Airport opened and took over Gimpo Airport's international services. In the following year, Korea Airports Corporation Law was legislated, and the organization

changed its name to Korea Airports Corporation. With its HQ at Gimpo Int'l Airport, it currently manages and operates 13 local branches (Jeju, Yangyang, Muan, Gimhae, Daegu, Cheongju, Ulsan, Yeosu, Gwangju, Sacheon, Pohang, Gunsan, Wonju). Before Korea Airports Corporation took over, Seoul and Busan Aviation Administration was in charge of airport expansion, repair and maintenance, aircraft movement area management, and management of parking lots · operation · airport security · national property. Whereas, after the rights were transferred, Korea Airports Corporation took charge of airport facility repair and maintenance, expansion of facilities with the approval of the Minister of Land, Transport and Maritime Affairs, operation of navigation facility · aviation light facility, aviation radio beacon facility, passenger service, and aircraft noise compensation.

The objective of Korea Airports Corporation is to efficiently construct, manage, and operate airports, to facilitate air transport, and to contribute to the national economy and citizen welfare.

Key operations include airport management · operation, vicinity development, construction · expansion · improvement of aircraft · passenger · cargo processing facilities and others needed for airport operation, study · research and technology development for airport facility construction · management · operation, production · sales · export of airport management · operation related equipments, bidding for overseas contracts, and installation of soundproof facilities to prevent noise pollution.

b. Incheon International Airports Corporation

Incheon International Airports Corporation established the Metropolitan Area New Airport Construction Corporation to build Incheon Int'l Airport in 1994. According to Incheon International Airports Corporation Law Article 5689, the current Incheon International Airports Corporation was established in 1999 for efficient construction, management, and operation of Incheon International Airport.

In particular, its objective is to construct, manage, and operate Incheon Int'l Airport in an efficient manner and grow into a global airport specialist organization, facilitate air transport, and eventually contribute to the national economy.

Key operations include the construction, management, operation, repair and maintenance of Incheon Int'l Airport, development of the vicinity to help the airport's management and operation, studies and research on Incheon Int'l Airport's construction, operation and management, electric and communications operations related to airport business, consulting works for airport construction and operation, overseas airports' construction, management, operation and vicinity development, and consignments from the government or local government bodies regarding Incheon Int'l Airport's construction, operation, and management. Focus areas are, inter alia, the operation and management of Incheon Int'l

Airport, and vicinity development and infrastructure development for new subsidiary businesses. In 2011, the government amended the Incheon International Airports Corporation Law, and announced its plan to privatize Incheon International Airports Corporation after the initial nationalization.[11]

Table 3-5 | Airport Operators

Airport Operator		Int'l Airport	Domestic Airport	Total
Incheon International Airports Corporation		Incheon Int'l Airport	-	1
Korea Airports Corporation	Civilian	Gimpo, Jeju, Yangyang, Muan Airports	Ulsan, Yeosu Airports	6
Korea Airports Corporation	Military	Gimhae, Daegu, Cheongju Airports	Gwangju, Sacheon, Pohang, Gunsan, Wonju Airports	8

Source: Korea Civil Aviation Development Association, Aviation Yearbook, 2010

2.2. Related Laws and Regulations

2.2.1. Laws on Development

a. Aviation Law

The Aviation Law was based on the 「Japanese Aviation Law (former Aviation Law)」 which was legislated in 1921, came into effect in 1927, and amended in 1958 with the advice of an aviation law specialist from the U.S. Federal Aviation Administration (FAA). The former Ministry of Transport (currently the Ministry of Land, Transport and Maritime Affairs)'s draft was voted for at the cabinet meeting in Nov. 1960 after a preliminary evaluation, and submitted to the congress. On Jan. 11, 1961, the 38th Lower House and the 17th Upper House congress (Feb. 22) passed the law, which was then announced as Law No. 591 by the government on Mar. 7, 1961, and came into effect on Jun. 8.[12] The Aviation Law was amended 61 times (partial amendment 35, complete amendment 1, other law amendments 25) since its legislation on Mar. 7, 1961, until Jul. 27, 2012.

11. http://terms.naver.com

12. Korea Airports Corporation, The History of Korean Civil Aviation, reorganized.

Table 3-6 | Yearly Aviation Law

Year	Law	Remarks
1927	Former Aviation Law (Japan Aviation Law)	Japan Aviation Law
1961	Aviation Law legislation	Law No. 591 announced
2012.7	Aviation Law amendment	Total 61 times (partial amendment 35, complete amendment 1, other law amendments 25)

Source: National Law Information Center, www.law.go.kr, 2012 amendment

The Aviation Law is the basic law that covers all aviation related issues. It comprises 10 chapters including aircraft, aviation sector employees, operation, air facilities, transport business, and foreign aircraft. The law takes on the characteristics of the international law, reflecting changes made in international standards; recently, amendments are made almost every year in response to the changes in the international environment.

Currently, domestic aviation related laws fall under the jurisdiction of either the Ministry of Land, Transport and Maritime Affairs or the Ministry of Knowledge Economy. The Ministry of Land, Transport and Maritime Affairs legislates and governs eight laws regarding transport industry and safety, and the Ministry of Knowledge Economy covers one law and lower-level legislation.[13] The Ministry of National Defense discarded the law on military aircraft and military base[14] and established the 「Military Facility Protection Law」 in 2008 to protect military facility and bases, and legislated laws needed to facilitate military operations.[15]

13. Ministry of Land, Transport and Maritime Affairs, Aviation Policy, 2011, P599 cited.

14. Marching Base Law, Military Air Base Law, Military Facility Protection Law.

15. Office of Legislation, Military Facility Protection Law, www.moleg.go.kr.

Table 3-7 | Effective Laws

Departments		Law
Ministry of Land, Transport and Maritime Affairs(8)	Director General for Airport Policies	Aviation Law, Air Safety and Security Law, Air Transport Business Promotion Law, Korea Airports Corporation Law, Incheon International Airports Corporation Law
Ministry of Land, Transport and Maritime Affairs(8)	Director General for Airport and ANF Policies	Metropolitan Area Airport Construction Development Law, Airport Noise Prevention and Countermeasure Area Support Law
Ministry of Land, Transport and Maritime Affairs(8)	Air · Railway Accident Investigation Commission Executive Office	Air · Railway Accident Investigation Law
Ministry of Knowledge Economy (1)		Aerospace Industry Development Promotion Law
Ministry of National Defense (1)		Military Base and Facility Protection Law

Source: Ministry of Land, Transport and Maritime Affairs, Aviation Policy, 2011

According to「Aviation Law」Article 89, airport development is to be based solely on the "Basic Airport Development Plan." The Ministry of Land, Transport and Maritime Affairs planned and executed projects based on the "Mid to Long-Term Basic Airport Development Plan" and the "Basic Airport Development Plan" in accordance with the above regulation, but amended the「Aviation Law」on Dec. 30, 2003 (law no. 7024). Then, it enacted the mid to long-term plan as the "Mid to Long-Term Comprehensive Airport Development Plan" under the「Aviation Law」, and the "Basic Airport Development Plan" for individual airports in Article 2.

The Basic Airport Development Plan is the uppermost plan in the airport sector, aiming for systematic and efficient execution of airport development projects. It covers all airports that are in operation or being built in the country and is amended every five years to reflect the socio-historical changes.

The Mid to Long-Term Comprehensive Airport Development Plans according to the Aviation Law, before and after the amendment, are shown as below in <Table 3-8>.

Table 3-8 | Mid to Long-term Comprehensive Airport Development Plan of the Aviation Law

Before Amendment	After Amendment (Dec. 31, 2003)
Article 89 (establishment of Basic Airport Development Plan=) ① The Minster of Construction and Transport must establish and execute the Basic Airport Development Plan (hereafter "Basic Plan") for effective execution of airport development.〈amended Dec. 13, 1997〉 ② If the Minster of Construction and Transport wishes to establish the Basic Plan based on Clause 1, he · she must collect the opinion of the head of the governing local government body and discuss with the head of the related central administration office.〈amended Dec. 13, 1997〉 ③ The Minster of Construction and Transport may demand data regarding the establishment or change of the Basic Plan to the head of the related administrative organization, and the head of the related administrative organization must comply unless there is an exceptional circumstance.〈amended Dec. 13, 1997〉 Article 90 (changes of the Basic Plan) omitted Article 91 (announcement of the Basic Plan) omitted Article 92 (contents of the Basic Plan) The Basic Plan must include the following. 〈amended Dec. 13, 1997〉 1. Mid to Long-term Airport Development Plan 2. Project area 3. Scale and layout of airport 4. Operation plan 5. Financing measures 6. Environment management plan 7. Other issues according to the Minister of Construction and Transport executive order	Article 89 (establishment of Mid to Long-term Airport Development Plan, etc.〈amended Dec. 30, 2003〉) ① The Minster of Transport must establish the Mid to Long-term Comprehensive Airport Development Plan (hereafter "Comprehensive Plan") every five years for systematic and efficient airport development projects. 〈amended 2003.12.30〉 1. Forecasting of air demand 2. Mid to Long-term Basic Plans for airport development in each zone 3. Investment demand and financing measures 4. Other issues regarding mid to long-term airport development ② If the Minster of Construction and Transport wishes to execute airport development projects, he/she must establish the Basic Airport Development Plan (hereafter "Basic Plan") including the following, according to the Comprehensive Plan established based on Article 1. 〈Newly legislated Dec. 30, 2003〉 1. Project area 2. Scale and layout of airport 3. Operation plan 4. Financing measures 5. Environment management plan 6. Other issues required for airport development ③ If the Minster of Construction and Transport wishes to establish the Basic Plan or Comprehensive Plan, he/she must collect the opinion of the head of the governing local government body and discuss with the head of the related central administration office. 〈amended Dec. 13, 1997, Dec. 30, 2003〉 ④ The Minster of Construction and Transport may demand data regarding the establishment or change of the Basic and Comprehensive Plan to the head of the related administrative organization, and the head of the related administrative organization must comply unless there is an exceptional circumstance.〈amended Dec. 13, 1997 and Dec. 30, 2003〉

Source : Ministry of Land, Transport and Maritime Affairs, the 3rd Mid to Long-term Comprehensive Airport System Development Plan, 2006

b. Promotion Law for New Airport Construction in the Metropolitan Area

Korea saw a rapid increase of air demand as overseas trips were deregulated in 1989 following the '88 Seoul Olympics. Soon after, Gimpo Airport's capacity reached its saturation and in addition to this, noise issues in nearby residential areas led to calls for building a new airport. At the time, the Ministry of Transport proposed the need to build a new metropolitan airport in its new year's report in Jan. 1989. In response, the tide land between Yongjong and Yongyu Islands in Incheon, which satisfied the review standards such as climate, noise, accessibility, and future expandability, was selected as the site for the new international airport in Jun. 1990.

To cover the various issues for building a new metropolitan airport, the government legislated the「Promotion Law for New Airport Construction in the Metropolitan Area」with the aim of responding to increasing air demand in the area and contributing to the national economy by efficiently executing the construction project of the metropolitan airport. The law was legislated as Law No. 4383 on May 31, 1991.

The objective is to define issues needed for swift construction of the new metropolitan airport, respond to the sharply increasing air demand in the area, and contribute to the national economy by efficiently executing the airport construction project.[16]

a) Key Contents

Key contents include establishment of the basic plan for the construction of the new metropolitan airport, simplification of administrative processes regarding various approvals and certifications based on related laws, appropriation of land, and financing the construction cost that covers overall issues related to the new airport construction. Altogether, it is comprised of 16 Articles.

Article 15 covers government support for the construction project, allowing partial or complete subsidy or loan for the project executor within the range of the budget.

In addition, contents include execution of supplementary constructions for project efficiency, issues regarding the new Airport Construction Deliberation Committee, exemptions for promoting the new airport construction project and quality improvement, appropriation and usage of land, restrictions on disposing public and national land, and penalties.

To further its development, this law was prepared to promote the current Incheon Airport.. However, as the development project is quite settled now, new needs for consolidating the law with the airport facility coverage of the Aviation Law are newly arising.

16. Ministry of Land, Transport and Maritime Affairs, Aviation Policy, 2011, P.631 cited.

b) Execution Process of the New Airport Development Project in the Metropolitan Area

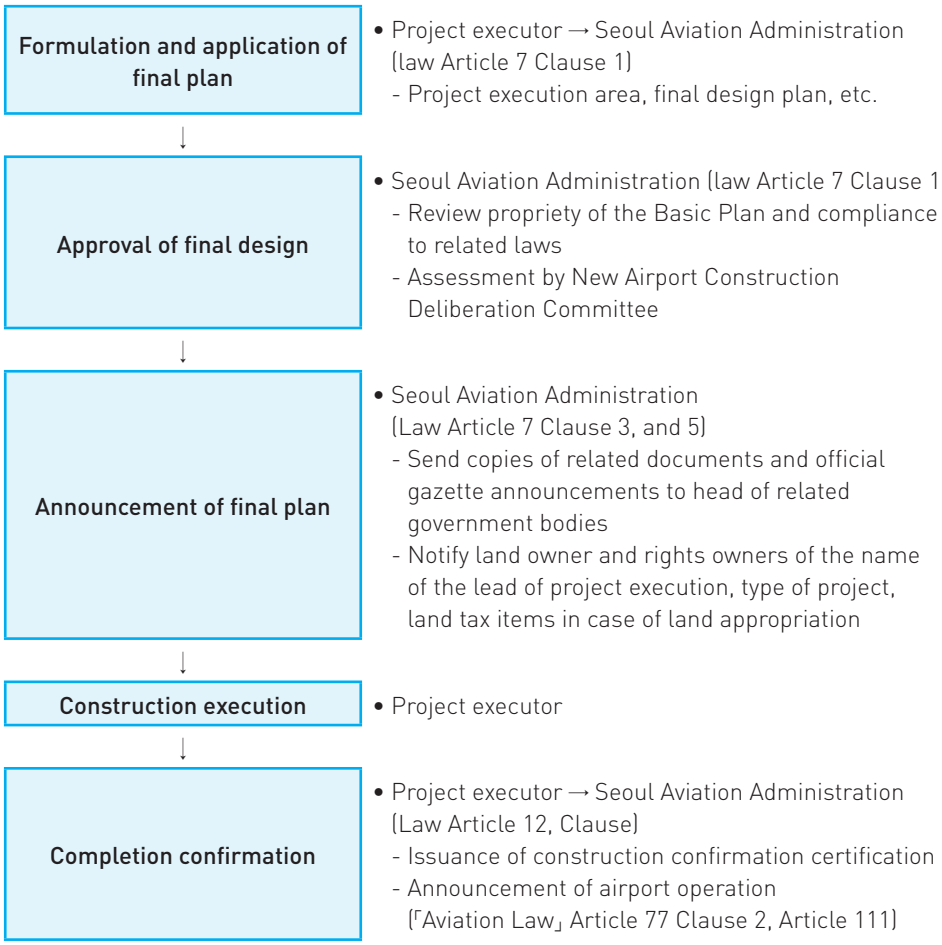
According to 「Aviation Law」 Article 89 and 「Promotion Law for New Airport Construction in the Metropolitan Area」 Article 4, the Minister of Land, Transport and Maritime Affairs establishes and changes the Mid to Long-term Comprehensive Airport Development Plan and the Basic Plan for the new airport construction project in the metropolitan area.

Other issues regarding project execution and management such as the designation of project executors, approval and announcement of the final design, completion certification, supervision, discussion with related organizations according to the 「Promotion Law for New Airport Construction in the Metropolitan Area」 are consigned to be executed by the 'head of the Seoul Aviation Administration' according to Article 41 Clause 5 of 「regulation regarding the transfer and consignment of administrative rights」.[17]

Table 3-9 | Execution Procedures of the New Airport Development Project in the Metropolitan Area

Establishment of Mid to Long-term Comprehensive Plan	• Ministry of Land, Transport and Maritime Affairs (Aviation Law Article 39) - Discuss with local government body and related central administration
↓	
Establishment and change of Basic Plan	• Ministry of Land, Transport and Maritime Affairs (law Article 4, 2 of 4) - Collect opinions of related mayors and governors, discuss with related central administration - Assessment by Social Overhead Capital Construction Promotion Committee
↓	
Announcement of Basic Plan	• Ministry of Land, Transport and Maritime Affairs (law Article 3 of 4) - Send to related mayors and governors (opened for public reading for over 20 days)
↓	
Designation of project executor	• Seoul Aviation Administration (law Article 6)
↓	

17. Ministry of Land, Transport and Maritime Affairs, Aviation Policy, 2011, p.633



Source: Ministry of Land, Transport and Maritime Affairs, Aviation Policy, 2011

2.2.2. Laws on Operation

a. Incheon International Airports Corporation Law

Before the opening of Incheon Int'l Airport in 2001, the Metropolitan Area New Airport Construction Corporation changed to Incheon International Airports Corporation, a corporation-type corporation, to actively induce domestic and overseas private capital. To ensure efficient operation of the high-tech airport, the government suggested the legislation of the 「Incheon International Airports Corporation Law」, which was legislated as Law No. 5689 on Feb. 26, 1999.

The objective of this law was to establish the Incheon International Airports Corporation for efficient construction · management · operation of Incheon Int'l Airport, and to develop it

as a global airport specialist corporation. Its eventual aim was to contribute to the national economy and facilitate air transport.

Key contents include Article 4 that allowed the corporation to divide capital into shares. Furthermore, the government and local government bodies were allowed to invest in spot, including movable assets and real estate, to facilitate the financing process.

Article 10 covers the new airport construction project, research and development, subsidiary businesses, and national consignment projects which fell under the jurisdiction of the prior Metropolitan Area New Airport Construction Corporation. Airport business related electric and communications projects that enabled comprehensive airport management and operation were also part of it. The Article also defines vicinity development projects that allow development and investment induction for back-up complexes, reservation areas and the International Free Trade Zone. Consulting business related to airport construction and operation were designated, establishing a legal basis for the construction, management and operation of overseas airports, vicinity development, and profit generation using the know-how accumulated through airport construction and operation.

In order to expedite the construction, Article allows the corporation to loan without interest, use or profit from national property despite the National Property Law regulation. The Corporation was allowed to build permanent facilities such as buildings on national property that were loaned or allowed for usage · profit generation.

「Incheon International Airports Corporation Law」 aims to support efficient construction and operation · management of Incheon Int'l Airport by establishing the Incheon International Airports Corporation, and developing the Corporation into a global airport specialist organization.[18]

a) Korea Airports Corporation Law

「Korea Airports Corporation Law」 closed down Korea Airport Corporation and established Korea Airports Corporation in the form of a corporation. To establish a competitive airport operation system, the law was legislated on Jan. 14, 2002 as Law No. 6607, granting management freedom to Korea Airports Corporation and securing the management system responsibly.

The objective is to support efficient construction · management · operation of 14 local airports including Gimpo, Gimhae and Jeju Airports (excluding Incheon Int'l Airport), facilitate air transport, and contribute to the national economy and welfare.[19]

18. Ministry of Land, Transport and Maritime Affairs, Aviation Policy, 2011, P.625.

19. Ministry of Land, Transport and Maritime Affairs, Aviation Policy, 2011, P.627.

b) History

「Korea Airports Corporation Law」was legislated on Jan. 14, 2002 (law no. 6607). It was amended a total of eight times by Mar. 2010, and partially amended four times excluding other law amendments.

The 1st amendment covers the administrative processes leading up to investment in the corporation for airport facilities, which takes one year or more. As efficient airport management can be deterred, contents regarding interest free loan of national property (law Article 10 Clause 1), and sublease of national property (law Article 11 Clause 1) were amended on May 26, 2006 (law no. 7514) to allow interest free loan or usage of or profiting from national property after the completion of the airport facilities.

To protect the title of special large scale legal corporations, most corporations or public corporations have Articles that prohibit the usage of similar titles and related administrative restrictions. In the case of the corporation, 「Korea Airports Corporation Law」prohibits the usage of titles similar to Korea Airports Corporation. The second amendment (Jan. 19, 2007, law no. 8255) added Articles on fines in Article 1 to prepare the legal basis of administrative restrictions.

Thereafter, the government conducted the 3rd amendment (Feb. 29, 2008, law no. 8852) to adjust phrases due to changes in the position titles and the amendment of the 「government organization law」. Airport's construction, management and operation related contents were added such as the production, sales and export of equipment the corporation develops, and overseas projects such as airport consulting and operation. To increase the fine from 1 million to 5 million won for using similar titles, the 4th amendment was conducted (Mar. 28, 2008, law no. 9607).

The 4th amendment (Jan. 3. 2009, law no. 9401, other law amendment) changes phrases due to the disuse of the 「law on the spot investment of national property」, and the 6th amendment (Mar. 25, 2009, law no. 9548) legislates 「law on public institution operation」 (law no. 8258, Jan. 19 2007) to ensure autonomous management of public institutions (announced on Jan. 19, 2007, executed on Apr. 1, 2007). To improve accessibility for the public, related regulations were reorganized, legal phrases were by principle recorded in the Korean alphabet, difficult terms were simplified, and long sentences were shortened.

The 7th amendment (Jun. 9, 2009, law no. 9780, other law amendment) was for partial changes in related Articles due to the amendment of the 「Aviation Law」, and the 8th amendment (Mar. 22, 2010, law no. 10161) for adding partial changes due to the new legislation of the 「Airport Noise Prevention and Noise Countermeasure Area Support Law」.[20]

20. Ministry of Land, Transport and Maritime Affairs, Aviation Policy, 2011, P.628.

c) Key Contents

This law facilitates air transport by supporting efficient airport construction, management and operation in Article 1. Also, it aims to contribute to the national economy and welfare. Article 4 allows Korea Airports Corporation to divide its capital into shares. The government or local government bodies can invest in spots such as movable assets or real estate for the construction project. Also, it allows investment of the airport facility management rights, facilitating the financing of the construction project.

Article 9 designates the corporation's business scope in terms of airport management and operation, necessary vicinity development projects, facility management and operation, airport development, installation and operation of combined transportation facilities, installation of soundproof facilities as part of a noise prevention countermeasure project, production, sales and export of equipment the corporation develops, as well as airport consulting and operation projects.

Articles 10 and 11 allow interest-free loan or usage, and profiting from national property despite the「National Property Law」if deemed necessary by the Minster of Land, Transport and Maritime Affairs. This is in order to efficiently execute the projects in Article 9 Clause 1 conducted by the corporation or government-led airport development projects, regarding interest-free loan and sublease of national property. When necessary, the corporation can sublease with the approval of the Minster of Land, Transport and Maritime Affairs.

Article 13 allows the issuance of bonds payable within the scope of four times of the total reserve and capital, based on the decision of the board. In order to support fund loaning, the government guarantees the return of the principal and interest of the bonds.

Article 16 establishes the basis for the Minister of Land, Transport and Maritime Affairs' oversight and supervision of issues regarding the airport facility users' benefit and safety as well as issues regarding airport facility security and aviation safety within the scope of the corporation's operation. This is to improve the public character and public benefit of airport operation. Also, the Article prohibits the divulgence of confidential issues the corporation board members or employees come into knowledge in relation to work, and in relation with other laws, fines, and penalties.[21]

Therefore, comprising a total of 21 Articles, key Articles include the legal foundation for capital and investment, scope of the corporation's operation (Article 9), interest-free loan and sublease of national property (Articles 10, 11), the scope of corporation supervision and oversight of the Minister of Land, Transport and Maritime Affairs (Article 16), and the relation to other laws, fines and penalties (Articles 19~21). As the Korea Airport

21. Ministry of Land, Transport and Maritime Affairs, Aviation Policy, 2011, P.629.

Corporation was converted to Aviation and Airport Corporation, the law aims to support efficient construction, management and operation of airports.

The key differences between Korea Airports Corporation Law and Incheon International Airports Corporation Law are as follows. In「Incheon International Airports Corporation Law」, the land and facilities are properties of Incheon International Airports Corporation. Therefore, unlike Korea Airports Corporation, it does not contain Article 4 Clause 3 of「Korea Airports Corporation Law」regarding airport facility management rights investment regulation, and「Korea Airports Corporation Law」Article 15 that designates domestic passenger airport service charge (out of the fees the corporation collects) as the corporation's income.

2.2.3. Other Related Laws

a. Aerospace Industry Development Promotion Law

「Aerospace Industry Development Promotion Law」, Law No. 3991, was legislated on Dec. 4, 1987.

The objective is to rationally support and foster the aerospace industry, efficiently research and develop aerospace science technology and contribute to the national economy and welfare.

Key contents include the establishment of the basic plan for aerospace industry development (Article 3), promotion of the aerospace industry (Article 4), designation and support of specific project executor or disqualification (Articles 5, 6), performance test and quality control (Article 10), establishment of aerospace industry promotion policy council (Article 14), functions (Article 15), organization (Article 16), consignment of rights (19), inspection fee (20), and penalty (Total 20 Articles).

「Aerospace Industry Development Promotion Law」aims to fully support and foster the aerospace industry, efficiently research and develop aerospace science technology and contribute to the national economy and welfare.

b. Air Transport Business Promotion Law

「Air Transport Business Promotion Law」, Law No. 2275, was legislated on Jan. 12, 1971.

The objective is to establish a legal basis for government support to cover the large expenses in developing international lines. As the air transport business has a small margin, improving the quality of service and promoting the aviation industry is crucial. Simply put, the aim is to promote the aviation industry to improve the national status and to contribute to the national economy. Article 2 defines 'air transport business' according to「Aviation Law」Article 2 Clause 31 as aviation transport business and 'air insurance' which includes

insurances declared by presidential decree, such as passenger · aircraft · cargo · war · 3rd party · crew insurance, etc.

In addition, the government can support part of the fund or loan the expenses according to the presidential decree if financial support is deemed necessary. Such cases include those of loss due to war, civil war or terrorism, training of aircraft pilot · maintenance workers · wireless technicians or the development of new international routes in relation to business plans approved by the Aviation Law for air transport business entities (hereafter 'aviation enterprise'). If air transport business promotion is deemed necessary for vitalizing the local economy, local government bodies can also financially support aviation enterprises within the range of its budget according to the ordinance.

c. Aviation Safety and Security Law

The「Aviation Safety and Security Law」was a renewed version of the「Aircraft Navigation Safety Law」legislated on Dec. 26, 1974. This law aimed to prevent illegal activities in navigation safety facilities, airport facilities, and aircraft and to secure the safety and security of civil aviation according to international agreements. Announced on Aug. 26, 2002, it began its execution on Nov. 27, 2002 based on the supplementary provision.

The main objective is to secure the safety of the crew, passengers, aircraft, and aviation -related facilities under ICAO's basic aviation objectives. The key here is to secure safe operation of civil aviation by preventing illegal activities regarding key airport, aircraft facilities, and navigation safety facilities.

Key contents include issues on the organization and operation of aviation safety conference, establishment of national aviation security plans, establishment of self security plans for airport operators, safety and security such as airport facility · access restriction zone · passenger inspection, prohibition of carrying harmful objects such as weaponry, security equipment and training, provision of information that threatens air safety, contingency plans, aviation security inspection, relief of aircraft damage, and rights consignment.

「Aviation Safety and Security Law」covers the process, standard, and obligations to prevent illegal activities in airport facilities, navigation safety facilities, and aircrafts. It also ensures security.[22]

22. Ministry of Land, Transport and Maritime Affairs, Aviation Policy, 2011, P602.

d. Air · Railway Accident Investigation Law

The「Air · Railway Accident Investigation Law」was legislated on Nov. 8, 2006 as Law No. 7692.

The objective is to install an air · railway accident Investigation Commission, to clearly determine the causes of accidents. Through independent and fair investigation of air and railway accidents, it aims to prevent air and railway accidents, and ensure safety.

Key contents include issues regarding the installation and operation of committees and executive office, notification process for air and railway accidents, organization and operation of Accident Investigation Committee, opinion collection, investigation report preparation, safety recommendation procedure, issues on accident investigation procedures such as prohibition of investigation information divulgence, basis for independent accident investigation, and prohibition of accident information divulgence, penalties for interfering with accident investigation, violation of confidentiality and notification of accident occurrence.

In 2002, a need for independence arose as a result of ICAO's aviation safety assessment, and the air accident investigation was parted from the Aviation Safety Organization. Thereafter, to ensure the objectivity of accident investigation, the law dictates contents such as the installation of a committee in charge of accident investigation for air and railways.

e. Airport Noise Prevention and Noise Countermeasure Area Support Law

「Airport Noise Prevention and Noise Countermeasure Area Support Law」was legislated on Mar. 22, 2010 as Law No. 10161.

The objective is to prevent airport noise, efficiently execute airport noise countermeasures and resident support projects, ensure a pleasant environment, improve welfare, and contribute to the vitalization of air transport.

Key contents include issues regarding the designation and announcement of noise countermeasure areas in airport vicinities, installation of facilities based on the degree of noise impact and restrictions on the usage, establishment of noise countermeasure project planning, installation and operation of automatic noise measurement network, damage compensation for type 1 area and reclaim · request for purchase, aircraft noise level and noise allotment levying · collection, and resident support project.

The「Airport Noise Prevention and Noise Countermeasure Area Support Law」was covered in the Aviation Law's airport noise section. However, as the Aviation Law could not cover the overall scope, this new law was specially legislated to prepare comprehensive measures for airport noise, that is, noise prevention and supporting damage limitation areas.[23]

23. Ministry of Land, Transport and Maritime Affairs, Aviation Policy, 2011, P605 cited.

3. Financing Measures

3.1. Airport Development Financing

Financing for airport development projects is mainly covered by the government or corporations. Investors include the government, airport corporations, local governments, and private works. While Incheon Int'l Airport is an exemplary case of private sector led funding, most of the other projects are led by the government. The financing status for airport development is shown in the table below.

Table 3-10 | Airport Financing Status

(Unit: 1 million won)

Classification		2006	2007	2008	2009	2010	2011	Total
In cheno Int'l Airport	Govern-ment	307,100 (34.5%)	200,000 (28.3%)	65,500 (24.0%)	-	-	-	572,600 (28.1%)
In cheno Int'l Airport	Incheon Corpor-ation	583,112 (65.5%)	505,980 (71.7%)	207,940 (76.1%)	55,691 (100%)	43,833 (100%)	69,500 (100%)	1,466,056 (71.9%)
Other Airports	Govern-ment	58,259 (90.1%)	96,288 (85.0%)	42,218 (31.5%)	1,447 (1.4%)	5,000 (6.2%)	4,371 (12.5%)	207,583 (39.0%)
Other Airports	Korea Airport Corpora-tion	6,413 (9.9%)	17,029 (15.0%)	91,858 (68.5%)	102,965 (98.6%)	75,551 (93.8%)	30,716 (87.5%)	324,532 (61.0%)
Total	Government	365,359 (38.3%)	296,288 (36.2%)	107,718 (26.4%)	1,447 (0.9%)	5,000 (4.0%)	4,371 (4.2%)	780,183 (30.3%)
Total	Both Airport Corporations	589,525 (61.7%)	523,009 (63.8%)	299,798 (73.6%)	158,656 (99.1%)	119,384 (96.0%)	100,216 (95.8%)	1,790,588 (69.7%)
Total		954,884	819,297	407,516	161,103	124,384	104,587	2,570,771

Note : Data from 2011 provided by Ministry of Land, Transport and Maritime Affairs

Source: Ministry of Land, Transport and Maritime Affairs, the 4th Mid to Long-term Comprehensive Airport System Development Plan establishment (announcement), 2006~2010 reorganized, 2010

In the case of Incheon Airport, during phase 2 (2002~2008) 3 trillion 100 billion won, and during phase 3 (2009~2017) 4 trillion won were invested for expansion. In other new airport projects, about 350 billion won was invested in Yangyang Airport construction, and the rest in Muan Airport. Facility expansion for existing airports was concentrated on Gimhae and Jeju Airports.

In 2008, Incheon Airport's Construction Project of phase 2 was completed, and the scale of airport facility investment decreased to an annual amount of 100 billion won. Still however, the burden of the two corporations is increasing. The government financed 40% of Incheon Airport's construction in phase 1, and 35% for construction in phase 2, and Incheon International Airports Corporation is investing the total amount from 2009. For other airports, Korea Airports Corporation began to take part in facility investment from 2006.

During the planned period of 2011~2015, the expected investment scale is about 2 trillion won, and Incheon Airport's project for phase 3 is to take up about 90% of the cost.

Table 3-11 | Investment Execution for Each Airport

(Unit: 1 million won)

Airport Projects		Project Period	Total	~2000	2001	2002	2003	2004	2005	2006	2007~	2008~
Incheon	Phase 1	1992~2001	5,632,300	5,304,700	327,600							
Incheon	Phase 2	2002~2008	3,091,800		4,000	51,750	154,650	274,700	554,600	1,286,800	424,359	360,941
Incheon	Phase 3	2009~2017	4,033,600									4,033,600
Gimpo	Approach control radar improvement, etc.	2007~2010	23,804								23,804	
Gimpo	Control communication facility improvement	2007~2008	5,000								5,000	
Gimhae	Phase 2 expansion	1997~2007	364,661	54,075	50,729	30,131	34,978	44,421	45,823	28,500	76,004	
Jeju	Expansion	2000~2007	269,860	1,747	17,265	23,149	16,271	14,798	26,449	1,769	168,412	
Daegu	Expansion	1995~2001	87,800	70,800	17,000							
Daegu	Main runway repair	2004~2006	23,700					2,045	11,715	9,940		
Daegu	Underpass	2002~2006	9,067			223	1,890	1,631	2,661	2,662		
Daegu	Reserve runway landing pad expansion	2002~2004	7,712			1,091	4,433	2,188				
Daegu	Aircraft fueling facility	2002~2003	3,300			1,650	1,650					
Cheongju	Cargo terminal	2002~2003	3,038			118	2,920					
Cheongju	Omnidirectional radio range facility improvement, etc.	2008~2010	1895								1,895	

Airport Projects		Project Period	Total	~2000	2001	2002	2003	2004	2005	2006	2007~	2008~
Yangyang	Yangyang Airport construction	1994~2001	346,595	290,922	55,673							
Yangyang	Gust alarm system	2002~2003	1,258				1,258					
Yangyang	Approach control radar construction	2007~2008	12,000								12,000	
Ulsan	Landing pad expansion	2003~2007	43,700				560	458	2,478	200	40,004	
Ulsan	Approach radar construction	2000~2005	16,100	2,680	2,680	2,680	2,680	2,680	2,700			
Ulsan	VOR/DME	2002~2003	793			793						
Ulsan	Gust alarm system	2004~2007	1,651					412	412	412	415	
Yeosu	Expansion	1995~2006	222,915	89,351	18,206	18,614	15,944	37,624	26,808	16,368	-	
Yeosu	Approach radar construction	2000~2005	16,900	2,810	2,810	2,810	2,810	2,810	2,850			
Pohang	Expansion	1997~2002	65,100	19,400	23,000	21,700		1,000				
Pohang	New instrument landing facility	2004~2006	3,409					100	1,650	1,659		
Yecheon	Expansion	1997~2002	38,700	11,300	14,100	13,300						
Uljin	New construction	1996~2007	129,696	7,407	17,078	29,900	19,104	27,842	10,509	4,000	13,856	
Muan	New construction (opening)	1997~2005	300,387	90,121	47,490	52,186	31,268	27,344	6,664	9,800	35,514	
Gimje	New construction (suspended)	1999~2006 now	145,017	664	7,161	14,603	10,579	12,142	3,946		95,922	
Radio Beacon	Jeju Pohang beacon Omnidirectional radio range facility improvement	2004~2006	4,600					1,150	1,150	1,150	1,150	
Total			12,479,544	5,945,977	604,792	264,698	300,995	453,345	700,415	1,363,260	898,335	4,033,600

Note: 1. This data is based on information from Ministry of Land, Transport and Maritime Affairs, covering key projects in the airport sector

2. Only covers government-supported projects. Incheon Airport's case includes self appropriation fund

3. Projects after 2006 can differ from the investment plan in the Mid to Long-term Comprehensive Plans of each airport

Source : Ministry of Land, Transport and Maritime Affairs

As for the maintenance costs at each airport, expenditure was highest at Gimpo Airport in 2010, followed by Gimhae and Jeju, whereas Wonju Airport had the least. In 2011, expenditure was highest at Gimpo, followed by those of Jeju and Gimhae. In particular, Jeju Airport's expenditure has increased compared to that of 2010.

The following shows the maintenance costs at each airport during the period of 2010~2011.

Table 3-12 | Airport Maintenance Costs (2010~2011)

(Unit: 1 million won)

Airport	2010		2011	
Airport	Operation Cost	General Maintenance Cost	Operation Cost	General Maintenance Cost
Gimpo	78,146	34,940	65,558	33,605
Gimhae	26,012	17,615	28,514	15,469
Jeju	25,141	16,856	29,014	15,330
Daegu	4,629	3,104	4,932	2,733
Gwangju	3,347	1,096	3,436	731
Ulsan	3,931	2,096	3,912	1,443
Cheongju	4,140	3,753	4,632	3,389
Yangyang	2,180	3,892	2,713	3,785
Yeosu	3,982	1,536	4,130	1,247
Sacheon	1,051	1,179	1,048	974
Pohang	2,934	2,690	3,744	2,571
Gunsan	764	509	763	266
Wonju	502	297	502	173
Muan	5,050	1,045	5,700	614

Source: Korea Airports Corporation, financial statement by airport, internal resource reorganized, 2010~2011

Financing entities include the government and airport corporations. Projects by investing entities are shown as below, which may change depending on conditions in the execution process.

Projects solely financed by the government include Cheongju Airport northern entry road construction, feasibility on runway expansion, Yeosu Airport taxiway expansion, Jeju Airport demand re-review, comparison of new airport construction and existing airport expansion options.

Projects solely financed by the airport corporations include Gimpo Airport domestic and international passenger terminal improvement, geothermal and solar energy utilization project, high efficiency LED lighting construction, Ulsan Airport aviation safety standard fulfillment project, Jeju Airport expansion (existing project) and addition of rapid exit taxiway, apron moving line efficiency improvement, taxiway pad facility improvement, F grade alternative airport facility improvement, etc.

The total project cost for the construction of Incheon International Airport during phase 1 was 6 trillion 771.2 billion won, and the construction cost minus construction management cost was 5 trillion 632.3 billion won. Out of the construction project cost minus private investment, 40% was funded by government subsidies, and 60% was financed by selling a part of the Airport New City, financial institution loan, bond issuance, and foreign capital loan. The private sector funded facilities including the cargo terminal, aircraft fueling facility, cogeneration power plant, aircraft maintenance facility, GSE maintenance facility, in-flight meal facility and cargo warehouse as well as exclusive expressways and railways. Facilities other than the railway system were completed in Dec. 2000. Especially, an exclusive expressway was completely funded by the private sector, the New Airport Highway Co. Ltd. that was established by 11 Korean construction companies, excluding the initial government subsidy.[24]

Among them, for the fueling facility and cogeneration power plan, over 15% of share participation was proposed to the Ministry of Land, Transport and Maritime Affairs, taking the facility's public character and future investment into account. However, the Ministry of Land, Transport and Maritime Affairs confirmed 34% of public share, reflecting the opinions of private business applicants such as carriers. To secure investment, Incheon International Airports Corporation submitted a proposal to the Ministry of Land, Transport and Maritime Affairs to apply for government subsidy for public share investment based on discussions with Korea Airports Corporation. But, despite such attempt, the Ministry of Land, Transport and Maritime Affairs designated Korea Airports Corporation as the main investor.[25]

Construction of Incheon Airport phase 3 is jointly funded by the government and the airport corporation.

The following table shows the contents of projects by each investor.

24. Incheon International Airports Corporation, Incheon International Airport Construction Phase 1 1991~2001, 2001, P139.

25. Incheon International Airports Corporation, Incheon International Airport Construction Phase 1 1991~2001, 2001, P319.

Table 3-13 | Project Content by Investor

Classification	Solely funded by the government	Solely funded by the airport corporation	Government and airport corporation	Government and airport corporation, local government and private sector
Project content	Cheongju: northern entry road construction, feasibility study on runway extension Yeosu: taxiway expansion Jeju: demand re-review, comparison of new airport construction and existing airport expansion options	〈Korea Airports Corporation〉 Gimpo: domestic and int'l passenger terminal improvement, geothermal and solar energy utilization Ulsan: aviation safety standard fulfillment Jeju: supplementation (existing project), adding rapid exit taxiway, apron moving line efficiency improvement, taxiway pad facility improvement, F grade alternative airport facility improvement All airports: high efficiency LED lighting construction	Incheon Airport Phase 3 Project	Ulleungdo Airport Heuksando Airport

Note : Incheon Airport phase 3 Project considers the case of including government subsidy
Source: Ministry of Land, Transport and Maritime Affairs, the 4th Mid to Long-term Comprehensive Airport System Development Plan establishment, 2010, reorganized

The following section covers the investment scale for airport development plans.

3.6.1. Yearly Airport Development Plan Investment Scale

The 1st Mid to Long-Term Basic Airport System Development Plan's airport development investment plan, based on government funding, did not systematically conduct the economic feasibility analysis.

The 2nd Mid to Long-Term Basic Airport System Development Plan looks at investment plans from 2000 to 2010, expecting about 13.44 trillion for airport facility supplementation, investing 11 trillion 90 billion won in Incheon Airport (82%) and 2.35 trillion (18%) in other airports.

Table 3-14 | The 2nd Plan's Investment Scale for Each Airport (2000~2010)

(Unit: 100 million won)

Airport	Investment Demand	Airport	Investment Demand
Total		134,428	
Incheon	110,889	Yeosu	1,736
Gimpo	3,691	Daegu	538
Yangyang	1,744	Uljin	1,536
Gangreung	384	Yecheon	417
Cheongju	101	Pohang	696
Wonju	43	Gimhae	3,705
Muan	3,226	Ulsan	1,000
Gunsan	5	Sacheon	957
Jeonju	1,219	Jeju	2,509
Gwangju	32		

Note: The 2nd Mid to Long-term Basic Airport Development Plan's planning period is phase 1 (mid-term), from 2000 to 2010

Source: Ministry of Land, Transport and Maritime Affairs, the 2nd Mid to Long-term Basic Airport Development Plan announcement, 2000

The 3rd Mid to Long-term Comprehensive Airport System Development Plan invests 4.24 billion in existing projects and about 16 billion won in new projects from 2006 to 2010 out of a total of about 4.40 billion. The share of new projects takes priority in the order of airport basic facility and operation improvement, and then safety standard fulfillment projects. In airport basic facility and operation improvement projects, investments go to navigation safety facility improvement and construction, and runway pavement projects. In safety standard fulfillment projects, investment goes to securing parallel taxiway pad, and open sewer drain covering. In facility capacity expansion projects, Gimpo focuses on light aircraft apron expansion, and Cheongju focuses on apron expansion.

Table 3-15 | The 3rd Plan's Investment Scale for Each Airport (2006~2010)

(Unit: 100 million won)

Airport		Project	Project Period	Total Project Cost	~'05	Investment during Planned Period ('06~'10)	Remarks
Incheon	Existing	Phase 2 expansion	'02~'08	47,032	10,397	36,635	Including Incheon Corporation's investment
Gimpo	Existing	Facility site compensation	-	24	-	24	
Gimpo	New	Securing light aircraft apron and parallel taxiway pad	-	-	-	(100) (27) (403)	
Cheongju	New	Apron expansion landing pad improvement navigation safety facility improvement	-	-	-	(39) (85) (39)	
Yangyang	-	-	-	-	-	-	
Wonju	New	Navigation safety facility improvement	-	-	-	(20)	
Muan	Existing	New airport construction	'97~'07	3,056	2,601	455	
Gwangju	-	-	-	-	-	-	
Yeosu	Existing	Expansion	'95~'06	2,229	2,054	175	Korea Airports Corporation
Yeosu	Existing	Gust alarm system	-	21	-	21	Korea Airports Corporation
Gunsan	-	-	-	-	-	-	
Mokpo	-	-	-	-	-	-	
Gimje	Existing	New airport construction	'99~ undetermined	1,450	476	974	Construction initiation period undetermined
Gimhae	Existing	Phase 2 expansion	'97~'07	3,932	2,664	1,268	
Gimhae	New	Navigation safety facility improvement		-	-	(37)	
Daegu	Existing	Underpass construction	'02~'06	328	201	127	
Daegu	New	Navigation safety facility improvement		-	-	(20)	
Ulsan	Existing	Landing pad expansion, etc.	'03~'10	597	10	587	Korea Airports Corporation
Ulsan	New	Navigation safety facility improvement	-	-	-	(38)	Korea Airports Corporation
Sacheon	New	Runway and taxiway paving navigation safety facility improvement	-	-	-	(201) (278)	

Airport		Project	Project Period	Total Project Cost	~'05	Investment during Planned Period ('06~'10)	Remarks
Pohang	Existing	Navigation safety facility improvement, etc.	-	49	-	49	
Pohang	New	Landing pad, runway repaving navigation safety facility improvement	-	-	-	(151) (210)	
Uljin	Existing	New airport construction	'96~'08	1,317	1,081	236	
Jeju	Existing	Expansion, etc.	'00~'10	2,699	847	1,852	Korea Airports Corporation
Jeju	New	Navigation safety facility improvement, etc.	-	-	-	(18)	Korea Airports Corporation
Total	Existing	Investment during planned period ('06~'10) 4406.9 billion won		62,734	20,331	42,403	
Total	New	Investment during planned period ('06~'10) 4406.9 billion won				(1,666)	

Note: 1. New projects' executing entity, investment, and project period may be subject to change depending on the project planning and discussions with related organizations, considering the execution method of future airport development projects and national budget execution plans

2. Investment amount includes government subsidy and corporation investment

3. The amounts are rounded off in 100 million units

Source: Ministry of Land, Transport and Maritime Affairs, the 3rd Mid to Long-term Comprehensive Airport System Development Plan announcement, 2006.11

The 4th Mid to Long-term Comprehensive Airport System Development Plan invests a total of 2 trillion 1.3 billion won in airport development, in particular 1 trillion 799.9 billion (about 89.9%) in Incheon Airport phase 3 construction from 2011 to 2015.

Table 3-16 | The 4th Plan's Investment Scale for Each Airport (2011~2015)

(Unit: 100 million won)

Airport		Project	Project Period	Total Project Cost	Investment during Planned Period ('06~'10)	Investor
Incheon	Existing	• Incheon Airport phase 3	'09~'17	40,386	17,999	Ministry of Land, Transport and Maritime Affairs, Incheon International Airports Corporation
Gimpo	New	• Domestic passenger terminal improvement • Int'l passenger terminal improvement • Geothermal and solar energy utilization • High efficiency LED lighting construction (all airports)	'11~'15 '13~'17 '10~'13 '09~'15	752 308 2 100	752 237 2 100	Korea Airports Corporation
Cheongju	New	• Northern entry road construction • Runway extension feasibility study	'11~'15 '11~'12	150 10	150 10	Ministry of Land, Transport and Maritime Affairs
Yeosu	New	• Taxiway expansion	'11	25	25	Ministry of Land, Transport and Maritime Affairs
Ulsan	New	• Aviation safety standard fulfillment	'11~'12	30	30	Korea Airports Corporation
Jeju	Existing	• Jeju Airport expansion	'00~'12	3,855	538	Korea Airports Corporation
Jeju	New	• Adding rapid exit taxiway • Apron moving line efficiency improvement • Taxiway pad facility improvement • F grade alternative airport facility improvement	'12~'14 '12~'14 '12 '12	63 89 5 3	63 89 5 3	Korea Airports Corporation
Jeju	New	• Jeju airport demand re-review and comparison of new airport construction and existing airport expansion	'14	10	10	Ministry of Land, Transport and Maritime Affairs
Total	Existing	Investment during planned period ('11~'15) 2001.3 billion won		44,241	18,537	
Total	New	Investment during planned period ('11~'15) 20,013억 won		1,547	1,476	

Note: 1. New projects' executing entity, investment, and project period may be subject to change depending on the project planning and discussions with related organizations, considering the execution method of future airport development projects and national budget execution plans

2. Navigation safety facility improvement and expansion plans to be separately planned and executed

Source: Ministry of Land, Transport and Maritime Affairs, the 4th Mid to Long-term Comprehensive Airport System Development Plan announcement, 2011.1

3.1.2. Directions for Yearly Airport Development Investment

<Table 3-17> shows the directions for airport development investment for the 1st Mid to Long-Term Basic Airport System Development Plan and the 2nd Mid to Long-Term Basic Airport System Development Plan, the 3rd Mid to Long-term Comprehensive Airport System Development Plan, and the 4th Mid to Long-term Comprehensive Airport System Development Plan.

Table 3-17 | Airport Development Investment Directions in the 1st ~ 4th Plans

1st Mid to Long-term (Apr. '94)	2nd Mid to Long-term (Dec. '99)
• Supplement financing measures • Analyze unsatisfactory economic efficiency	• Introduce private capital attraction based on the Private Capital Attraction Promotion Law (Private Capital Attraction Promotion Law) • Propose economic feasibility analysis results for each airport - Yearly investment cost for each airport - Forecast economic benefit for each airport - Prepare expected cash flow chart - Economic feasibility analysis result for each airport • Investment priority analysis for each airport - Development priority analysis for each airport
3rd Comprehensive Plan (Nov. '06)	**4th Comprehensive Plan (Jan. '11)**
• Determine investment priority based on airport System - Continual facility supplementation for Hub airport(Incheon) and base airports (Gimhae, Jeju) - Investment focused on navigation safety facility supplementation for other airports and military airfields	• Hub · base airport facility supplementation • Small airport development for island areas • Minimize new investment for navigation safety facility supplementation and improvement by improving safety facilities • Light aircraft airport development plan

Source: Ministry of Land, Transport and Maritime Affairs, 1st ~ 4th Mid to Long-term Comprehensive Airport System Development Plan establishment study

3.2. Financing Measure

The central government mainly funds airport development, which burden is heavy. As airport facilities require large scale investment as social overhead capital, the scale of each project varies from tens of billions to trillions of won, and conditions also vary. Therefore, it would be difficult for one entity to cover all the investment. Furthermore, the budget funded by the central government is limited and local government bodies have less financial capacity. Also, the airport corporations that function as operators have limitations in their own investment sources.

Financing for airport development projects are decided by the Ministry of Land, Transport and Maritime Affairs and the conditions of monetary authorities. Therefore, detailed classification is difficult.

However, with partial private capital attraction for Incheon Int'l Airport's case as a benchmark, airport financing should be more advanced and diversified in order to facilitate local airport financing and implement efficient operation methods from the private sector.[26] Financing measures for airport facilities take the following forms.

3.2.1. Various Public Capitals

It is imperative to actively develop logics that aim to secure investing sources for airport development and diversify the government's financing measures. To this end, there's a need to discover taxing sources in the airport sector. Issuing private investment bonds should also be considered. As it is unrealistic to secure airport development investments solely from airport profits, transportation tax sources should be efficiently used to draw investment to the airport sector.[27]

a. Tax

The most conventional method is to increase tax income and to use it for supplementing public facilities. However, this entails problems like resistance and the incongruence of profit and cost bearing. As the scale of the off-budget budget is big due to the characteristics of Korea's fiscal operations, tax payers also pay various quasi-taxes in addition to tax, which are seen as a tax burden. Also, as the tax structure itself is based on high tax rate -high exemption, high tax rates are applied when one tries to execute a project even if it does not fall under the category of actual taxable range, increasing a priori tax burden.

26. Lee Jae man, interview.

27. Ministry of Land, Transport and Maritime Affairs, the 2nd Mid to Long-term Basic Airport System Development Plan establishment study, 1999, P.615.

Recent policies try to increase tax income by newly adding various objective taxes which give the impression that profit and cost may coincide, but this isn't easy either. If an objective tax is newly established and the tax revenue to be used for a given purpose increases, the allotment rate is proportionately cut from the integrated financial management and the total amount to be used for the project before and after adding the new objective tax remains virtually the same.

Transportation facilities are installed for efficient operation and management, and for secure railway, road, airport and ports based on the Transportation System Special Accounting Law. Airport's annual revenue includes navigation safety facility service charge, noise allotment, countermeasure projects to compensate for removals due to airport noise and moving complex housing payment according to the execution of land purchase. Airports' annual expenditure includes expenses for airport noise countermeasure projects, supplementation · booking and loan for new airport construction project executor, and expenses for airport construction and operation related research and technology development.[28] Also, the gasoline · diesel tax was converted to transportation tax (objective tax) in order to effectively manage · operate and facilitate the construction of road · railway · airports ('93.12.31).

Congestion fee is an economic allotment levied to reduce traffic load in urban areas by reducing the number of cars that enter the urban center or by leading them to bypass. Currently executed at Namsan Tunnels 1 and 3, the cost is 2,000 won per car (in case of two passengers or less).

Traffic Induction Fee is to be levied upon owners of facilities that cause traffic congestion in urban transportation organization areas based on Article 36 of the 「Road Traffic Organization Promotion Law」. This fee is usually charged on large logistics facilities such as department stores, large supermarkets, and shopping centers.

According to the oil tax bill that was revised in 2012, the tax for gasoline is 475 won · liter, and that for diesel is 340 won · liter. Oil premium is a fixed amount of additional charge added to basic airfare in case of fuel cost increase to allow carriers to flexibly respond to the rapidly changing fuel cost. Considering that the ratio of oil cost (which is an exogenous variable in the sales cost) in the air transport industry is very high (about 30%), the objective is to add oil premium in connection to oil price changes to offset carriers' prime cost burden and repress long-term airfare increase, improving user benefit (beginning in Apr. '05).[29]

28. Ministry of Land, Transport and Maritime Affairs, Traffic Facility Special Accounting Law partial amended law proposal, 2010.

29. Ministry of Land, Transport and Maritime Affairs, oil premium media release.

b. National and Public Bond

The issuance of national and public bond is the most traditional way to attract private capital for government projects. Bond allows the government, public institution or companies to acquire long-term capital from the general public at once, and conditions such as principal redemption and interest payment are indicated on the issued bonds. Institutions and companies that can issue bonds are designated by law; in general, they include the government, public institution, special corporations, and corporations by commercial law.

The grounds for bond issuance is based on the Incheon International Airports Corporation Law, and the types of bonds issued by airport corporations include bonds for raising fund and bonds for construction or land compensation.

As for land compensation bonds, based on Land Appropriation Law Article 45, land compensation should be in cash and partially in bond. The land compensation bond issued by airport corporations covers the exceeded amount when the compensation cost for absentee resident and non-business land compensation exceeds 30 million won, or when the land owner or related parties within the Incheon International Airport construction site wants to receive bonds.

Construction related bonds were made to raise fund for reinforcing the airport's competitive edge against airports in nearby countries by minimizing the construction cost for the Incheon International Airport Construction Project, which is a large scale national project. Citing the construction bond issuance measure proposed in the 'Metropolitan Area New International Airport Financing Report' which was jointly prepared by Yooshin Corporation, Bechtel, and Korea Institute for Industrial Economics, the bond was issued based on the contract of paying 5% of the contract amount in bond to the Incheon International Airport Construction Project participants. Following its issuance, the bond facilitates sales and saves extra expenses. It can be stably issued within the range of a certain amount regardless of changes in domestic bond markets, and therefore was used as a key income source for the corporation. However, in May 1993, the Fair Trade Commission sent a correction order as it took the act of paying construction cost in bond instead of cash as taking advantage of the appropriation of advantageous status, unfair trading practice. Therefore, from the constructions conducted in 1993, bonds were continuously issued due to fairness concerns regarding other companies, but the bond issuance was suspended for the contracts established in 1994 and thereon. In May 1995, the Fair Trade Commission decided that bond issuance for long-term constructions contracted before 1994 were also unfair trading practices, hence issued a correction order to suspend issuance. To comply with the government's resolution to ensure fair trading, funding measures based on bond issuance was completely suspended on Aug. 1, 1995. Fund raising bonds are in the form of

total underwriting issuance with a domestic stock firm as the underwriter group which takes complete liability for the total amount of bond, aiming to fund the Incheon International Airport Construction Project. After 1998, the amount of issued bonds was 750 billion won.[30]

As the beneficial effect of urban public projects take a long time to show, the issuance of national and public bonds that lengthens the return period to the next generation corresponds to the benefit principle. However, the issuance of national and public bonds can also catalyze inflation due to increased issue of currency, or undermine healthy financial operation by aggravating budget deficit.

c. Public Utility Charge

The central government's utility charge revenue does not take up a large share in the overall budget. But the local government bodies heavily rely on charges which exceed the local tax revenue. As the public strongly resists the increase of public utility charges, increasing charges is hardly realizable by the Economic Minister, or even by the President. In fact, the shortage of urban public facility supply is mainly due to the unrealistically low rate of public utility charges. That is, the deficiency of urban public transport, low grade tap water, low quality electricity, and shortage of social welfare facilities all come from excessively low charges. Unrealistically however, while the citizens seek for more public services, they do not want to raise the cost. Therefore, there will be serious difficulties in raising fund through this method.

d. Public Loan

Measures to fund imported materials and equipment, and to pay technical services in foreign exchange for the Incheon International Airport Construction Project include private loan and international bond issuance. Foreign capital attraction is limited to importing facility materials and the government strongly restricts the induction of cash capital. This is because it entails increased issue of currency, such as purchasing domestically produced materials and equipment. By issuing this international bond, the airport corporation could secure a large scale, long-term foreign capital with low interest at once, and secure sufficient foreign capital for paying off imported materials and equipment even during the foreign currency crisis later in 1997.[31]

Foreign aid in the '50s, loans from IMF and World Bank in the '60~'70s, and Japan's economic cooperation loan in the '80s were catalyzers of national economic growth. At the time, the difference between overseas and domestic interest rates was very high. So

30. Incheon International Airports Corporation, Incheon International Airport Construction History Phase 1 1991~2001, 2001, P141.

31. Incheon International Airports Corporation, Incheon International Airport Construction History Phase 1 1991~2001, 2001, P142.

even after deducing high inflation rates, loans were always beneficial. However, as Korea has become more advanced, opportunities for foreign loan decreased while interest rates increased. Therefore, recently, public loans are no longer attractive and consequently, opportunities are decreasing.

3.2.2. Various Capital

The Ministry of Strategy and Finance is continuously discussing financing measures for airport facility construction. The Ministry of Strategy and Finance and Construction Association of Korea proposed improvement measures for the private investment law through the 'New Private Capital Project Discovery TF' Meeting, initiated in Mar. 2012. In the proposal, facilities that are likely to take the BTO and BTL methods include parking lots, underground facilities such as the concession, and airport facilities such as the Jeju New Airport, in addition to the railway facility for which the economic policy operation plan announced application guidelines.

a. Private Capital

Korea's corporate capital heavily relies on external funds. However, this rate is slowly decreasing. On the other hand, the rate of direct financing is increasing with the issuance of marketable securities and corporate bills. Enterprises do not have sufficient long-term operation capital to spearhead public projects. If payability can be guaranteed however, surveys on companies report that there is a higher rate of response in favor of participating in public projects. Yet, as payability is directly related to fees, the prospect still remains dubious unless the charges are not brought up to realistic standards.

b. BTO

BTO means profit based private investment projects led in the form of 'build → transfer → operate,' with the private sector running the facility for a period and directly profiting from it. The private enterprise builds the facility and takes on consigned management for a given period instead of contributed acceptance to the central or local government to retrieve investment. Private capital owns the operation rights of social overhead capital for a period, and the central or local government has the ownership. To attract private capital after the foreign currency crisis in 1997, the government amended the private investment law, which boosted BTO projects. Although BTO has a high rate of return, it also has high risk as the rate of return can change according to the demands.[32]

32. Ministry of Land, Transport and Maritime Affairs, the 2nd Mid to Long-term Basic Airport System Development Plan establishment study, 1999, P.686 national and public bonds, public service charge, public loan cited.

c. BTL

BTL method involves a private investor with sufficient surplus fund building public facility, lending it to the government and receiving rent. The order of BTL projects is 'build → transfer → lease,' whereby private capital invests in infrastructure and profits by charging rent or interest to the central or local government. The central or local government has ownership and operation rights of the infrastructure. A large amount of budget is expended if the government builds public facilities, but using private capital, rent can be paid over mid to long-term, leaving more space for other users in the budget structure.

d. BOT

BOT method, which takes the order of 'build → operate → transfer,' involves private investors designing and building the facility, operating for a given period, and transferring ownership at the end of the term.

The project executor (construction company) that wins the bid for the development project funds the project and operates the capital facility for a certain period after completing construction. The operation cost-share investors' dividends and loans are repaid with operation profit, and when the operation period is terminated, the ownership goes to the government without charge. This method is often used for infrastructure development in developing countries that cannot easily fund projects due to accumulated foreign loans or countries that are in the process of privatizing public enterprises. However, BOT projects take longer in construction and have a high risk due to reliance on political stability.

Table 3-18 | Comparison of Benefits and Drawbacks of Financing Measures

Investor	Financing Measure	Paying Party	Content	Benefits and Drawbacks
Government	General tax	Public	General accounting budget	National policy investment function, violates benefit principle fairness
Government	Object tax	Tax payer	Special accounting	Benefit principle fairness, determined in relation to national economic policy

Investor	Financing Measure	Paying Party	Content	Benefits and Drawbacks
Government	Beneficiary payment	Beneficiary	Retrieval of development profit	Benefit principle fairness, difficulty in setting range of benefit and tax collection
Government	User payment	User	Service charge	Benefit principle fairness, difficulty in collecting invested capital due to restrictions on public service charges
Government	Loan	Financial institution	Capital, loan, etc.	Long-term conversion of short-term capital needs, principal and interest return burden
Private	Private capital	Private enterprise	Private investment	Using private capital, problem with guaranteeing profitability
Private	BTO	Private enterprise	Operation right: private Ownership: central or local government Case: Incheon Airport	High profitability, risks include operation income and profit rate
Private	BTL	Private enterprise	Operation right: central or local government Ownership: central or local government	Return rate fixed in advance, removal of private sector's demand risk
Private	BOT	Private enterprise	Operation right: private Ownership after break-even point: central or local government Case: Incheon New Airport Highway	Stability guaranteed, long-term construction

Note: BTO, BTL, BOT internet source

Source: Ministry of Land, Transport and Maritime Affairs, the 2nd Mid to Long-term Basic Airport System Development Plan establishment study, 1999, reorganized

Chapter 4

Airport Policy

1. Domestic Airport Policy
2. Directions for Domestic Airport Development

Airport Policy

1. Domestic Airport Policy

1.1. Background of Policy Enforcement

Domestic aviation policies took comprehensive and detailed shape with the establishment of the basic air policy plan based on the Aviation Law amendment in 2008. From 1992 and 2003 each, Mid to Long-Term Basic Airport Development Plan and Mid to Long-term Comprehensive Airport Development Plans were respectively established for airport policy making.[33]

Key contents include forecasting future condition changes and prospects, proposing the vision and execution strategy and preparing detailed enforcement plans in the aviation sector.

1.2. Initial Airport Policy Enforcement Process

In 1961, the Aviation Law was legislated. It became the foundation of domestic aviation administration and air transport businesses that regulate methods for safe aircraft operation and propose directions for aviation policies and aviation facility standards, orders of aviation transport business, support for aviation advancement, standards for carrier operation

33. Airport policies are the process of realizing upper level aviation policies. Whereas aviation policies harmonize and advance various factors such as airports, routes, carriers, aircraft, and general aviation to contribute to the improvement of people's quality of life and to realize the mission of national transportation and industrial policies at the upper level. Airport policies, as part of the aviation policy, create one efficient system by harmonizing the functions of airports. This is the core infrastructure of aviation, which supports the success of the aviation policies. Therefore, airport policies must comply with the overall direction of aviation policies. In turn, correct direction setting for aviation policies is the premise for effective airport policy making.

initiation in Korea, operation restrictions concerning domestic areas, and prohibition of threats against aircraft and passengers.

Based on this Aviation Law, Gimpo and Jeju Airports' expansion spurred large scale investment and airport development throughout the industrialization period in the '70s. In the '80s, local base international airport plans were established. These plans were limited to resolving node problems. Therefore, airport expansion was conducted in accordance with air demand at each airport rather than plans based on airport policies. Cheongju Airport was to be constructed as a metropolitan area airport in 1984, but the airport policy was modified due to the reduction of the metropolitan area administration's transfer plan.

As air demand increased after the '88 Seoul Olympics, the need for a 2nd metropolitan airport arose. In Mar. 1989, the "New International Airport Construction Working Group" was formed, establishing the framework for the airport construction policy. The working group set up new airport development plans for the country, focusing on the metropolitan area, Busan area, eastern shoreline, west coast areas, and the Jeju area. As part of this policy, Incheon Airport, Yangyang Airport, and Muan Airport were constructed.

1.2.1. New Airport in the Metropolitan Area

22 candidate sites were selected focusing on the west coast area within a 100km radius of Seoul's urban center. Based on detailed studies, three candidates were selected, and Incheon Yongjong Island was finalized as the site due to construction conditions, high accessibility, less noise, and possibility of effective land usage.

1.2.2. New Airport in the Jeju Area

Sites were researched in the Jeju area, resulting in a total of 19 candidates: 8 from lowland sites in the western area, and 9 in the Jujwa site to the east. Detailed studies narrowed the list to six sites and then to two.

Out of the two sites, the Jujwa site has high accessibility and less noise, and the low land site has a higher land usage rate. As the airport will be shared by the civil and military operations, the Jujwa site was selected based on discussions among the Ministry of National Defense and related authorities.

1.2.3. New Airport in the Busan Area

Candidate sites were selected from a range of a 100km or less radius from Busan's urban center, resulting in 18 sites including Daesan and Gadeok Dong. A detailed study narrowed down the list to six sites and then to Myeongji, Daesan and Gadeok Do.

Myeongji site has high accessibility from the Busan urban center, but conflicts with the Busan New Town Development Plan; Daesan site has benefits in terms of economic feasibility and workability, but drawbacks in accessibility and noise; Gadeok Do requires excessive construction cost due to coast reclamation.

However, as a short-term measure, Gimhae Airport is to be expanded and existing facilities to be used. Despite its need to be moved, as large scale expansion is obstructed by obstacles in the route · topography and the urbanization of Busan's vicinity, this decision was made.

1.2.4. New Airport in the East Coast Area

In preparation for east coast tourist attraction development and long-term air demand, the need for a new international airport in the east coast area arose, aiming to improve the poor condition of Sokcho Airport.

Ten sites were selected within a radius of 100km or less from Sokcho to the south of P-518, and a detailed study narrowed the list down to three sites.

The Jajodae site has less economic feasibility and workability, whereas the Hakpori site has noise-related problems in the Naksan Temple area.

Considering the air demand, no site has sufficient economic efficiency. What is more, air demand is decreasing because of the high-speed railway operation. On this account, new airport development is postponed until the need for this policy rises again or economic feasibility could be guaranteed.

Still, Sokcho Airport could be expanded based on the mid to long-term plan, but the operation efficiency would decrease by half., In the meantime, there were proposals to build small airports for the convenience of domestic passengers in isolated Yeongdong areas.

1.2.5. New Airport in the West Coast Area

As part of Gwangju Airport's internationalization project, 13 sites were selected from within a 100km radius from the Gwangju Urban Center. The list was narrowed down to three sites through detailed studies.

The Naju site has high accessibility from Gwangju, but cannot coexist with Gwangju Air Field due to clashing air space. Moreover, measures to expand Gwangju Air Field obstruct the development of Gwangju City. Therefore, Muan was selected as the area has less noise, avoids air space overlap, and complies with the West Coast Development Plan.

1.2.6. Cheongju Airport

As part of the national policy, a new airport construction plan was established in 1984 in order to share Gimpo Airport's functions. However, Cheongju Airport's construction plan and period were modified due to the construction of Yongjong Island New Airport construction, and development plans were finalized setting 2001 as the target year. The basic plan was established in 1985, and the airport opened in 1997.[34]

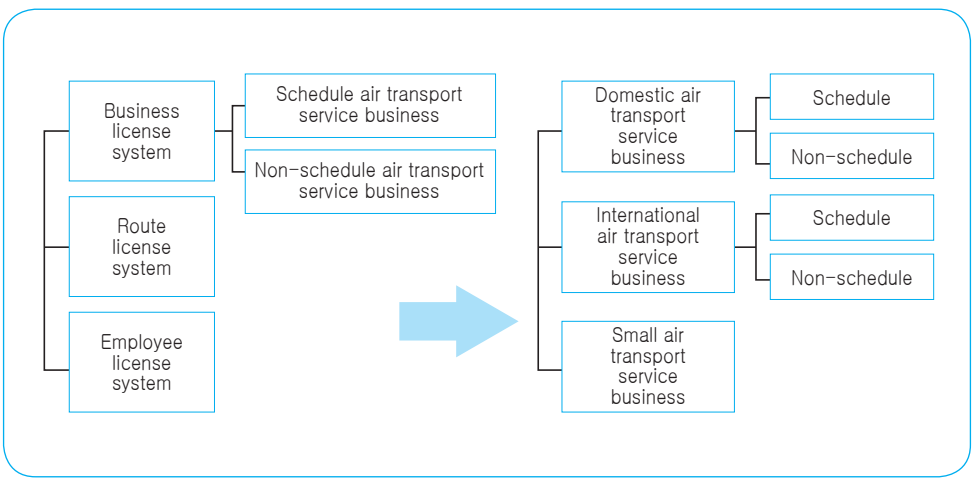
1.3. Current Airport Policies

1.3.1. Air Transport

In the past, when market entry in the air transport industry was limited, the range and variety of air transport service were restricted. Therefore, the air transport business license system was reorganized into categories of domestic · international air transport businesses and small air transport businesses, which opened opportunities to establish carriers that provide various air transport services based on the business capacity.

In 2009, the schedule · non-schedule air service license system was re-categorized into domestic · international, and international services were allowed to operate to areas with open sky agreements without any restriction.

Figure 4-1 | Reorganization of the Air Transport Business Licensing System



Source: Ministry of Land, Transport and Maritime Affairs, the 1st Aviation Policy Master Plan (2010~2014), 2009

34. Lee Jae man, interview.

Korea, China, and Japan discussed a consolidated air transport market and arrived at a tangible result towards a limited open skies agreement. Korea established an open skies agreement with China for the Shandong Province in Jun. 2006, focusing on gradual progress. With Japan, an open skies agreement was established for the entire country excluding Tokyo in Aug. 2007. By taking a proactive stance in open skies, Korea could reinforce the competitive advantages of its flag carriers and promote growth as a logistics hub.

Previous policies promoted gradual open skies and focused on protecting and fostering flag carriers. Since 2005, the direction changed towards a more active air negotiation policy, aiming to expand networks and reclaiming overseas markets.

1.3.2. Airport Infrastructure

In the past, Korea promoted airport infrastructure development without considering the systematic aspect at the national level. As a result, balanced airport development was deterred. To resolve this problem, KOTI and the Ministry of Land, Transport and Maritime Affairs are attempting to ensure balanced airport development and efficient operation by establishing the 「Mid to Long-term Comprehensive Airport Development Plan」 based on Aviation Law Article 89.

In addition, to develop the hub airport for the Northeast Asian region, the government developed Incheon International Airport in 2001. This was an attempt to overcome Gimpo International Airport's saturation and respond to continuously increasing demands. Since phase 2, airport facility supplementation was completed in 2008, including the concourse at Incheon International Airport and the 3rd runway. In 2012, the 3rd facility expansion including T2, which will further ensure competitive advantage, began in order to accommodate future demands. In terms of airport development and operation, investment was concentrated on the paradigm of airport development based on regional selection and focus.

Furthermore, logistics complexes are developed nearby Incheon Airport, accelerating Incheon International Airport's positioning as a logistics hub and leading highly value added logistics business.

By expanding route networks, improving airport operation service and implementing hub strategies, Incheon International Airport is becoming the new growth engine, elevating Korea's global status and entry into the overseas markets.

As for domestic airport operation, IAA applied the "Simplifying the Business (StB)" program for airport operation to improve the work process.

From 2011, Incheon Airport's share sales and Cheongju Airport's management right sales were executed to enhance competitive advantage by recruiting various operating parties for

airports. In order to develop Gimpo Airport as a short-haul international service focused airport, the "International Chartered Service Operation Regulations" were amended, supporting efficient usage of multiple airports. Currently, mid to short-haul international routes are continuously being expanded to vitalize local airports. Also, airports with less air demand such as Yangyang, Wonju, Sacheon, and Pohang Airports are reducing airport facility usage fees to attract more services.

1.3.3. Aviation Safety

In order to reinforce the Aviation Safety Management System, which previously lacked organization, the establishment of the 「Aviation Safety Technology Development Plan」, 「Aviation Safety Program」, and 「Basic Aviation Safety and Security Plan」 were promoted, respectively based on Aviation Law Article 27 Clause 2, Article 149, and Law on Aviation Safety and Security Article 9.

After obtaining class 2 from FAA, a separate aviation safety management organization was established, and the Air Accident Investigation Committee was formed as part of the Ministry of Land, Transport and Maritime Affairs to ensure the independence and expertise of aviation safety management.

Aiming at no fatal accident for 10 consecutive years, the overall legal system concerning aviation was reorganized, the 「Aviation Safety Program」 was established based on Aviation Law Article 49, the execution standards for the 「Aviation Safety Management System (SMS)」 was established, and SMS was implemented for each field including the airport, carrier, and control.

As a turning point, Korea strongly reinforced the aviation safety system by focusing on the specialization of safety supervision and international standard implementation, with the '01 International Safety Assessment by the U.S. and the ICAO comprehensive safety assessment in 2008.

- ICAO executes the Global Aviation Safety Plan (GANP), Comprehensive Aviation Safety Assessment (USOAP), National Aviation Safety Program (NSP), and Safety Management System (SMS).
- IATA executes the Six-point Safety Program, Safety Management System (SMS), Safety Trend Assessment, and Analysis and Information Exchange System (STEADES).

To manage the Systematic International Recommendation and Standard (SARPs), Korea developed 「SMIS, SARPs Management and Implementation System」 for the first time in the world in Dec. 2005, and promoted its distribution and establishment as an international standard.

The following table shows changes in the aviation policies.

Table 4-1 | Direction for the 1st Basic Aviation Policy Plan

Changes in the Aviation Policy Paradigm		
Changes in Aviation Policy Paradigm		
• Quantitative growth of air transport	⇨	Qualitative growth of air transport
• Focus on physical airport development	⇨	Focus on competitive airport development
• Safety oriented, focusing on implementing advanced systems	⇨	Focus on reinforcement and differentiation
• Focus on partial, limited air transport business	⇨	Focus on multiplicity and high added value
• Focus on supplier	⇨	Focus on consumer and environment protection

Source: Ministry of Land, Transport and Maritime Affairs, the 1st Basic Aviation Policy Plan (2010~2014), 2009

1.3.4. Local Airport Vitalization

The Ministry of Construction and Transport (currently the Ministry of Land, Transport and Maritime Affairs) prepared measures to vitalize local airports. For this, further decrease in air demand at airports located near railway routes due to the opening of the high-speed railway, decrease in local airport demands with the improvement of ground transportation conditions such as the opening of the Daejeon~Jinju Expressway, West Coast Expressway, Central Expressway, and the expansion of Yeongdong Expressway in the end of 2001, and the influence of 9/11 in the U.S. in Nov. 2002 were considered.

The rates of decreasing airport users in Aug. 2002, compared to those of Aug. 2001, are Gimhae -10.8%, Gwangju -9.0%, Yeosu -28.8%, Mokpo -65.3%, Sacheon -43.3%, and -6.4% at the average nationwide scale.

Key contents include reinforced efforts to induce mid to long-haul international routes to Japan, China, and Southeast Asia, aiming to expand international operation in response to the decreased domestic demand.

In order to enforce the local airport vitalization project, key contents include reinforced efforts to induce mid to long-haul international routes to Japan, China, and Southeast Asia, aiming to expand international operation in response to the decreased domestic demand; and quick designation of open port for airports that have not been designated as open port. Aviation conference records include Thailand and Vietnam (Sep. 2002), Japan, Singapore and India (Nov. 2002), and China (Dec. 2001).

To induce and create domestic and international demands at local airports, local government bodies reinforced promotional activities for attracting tourists with cultural tourist products that reflect local characteristics. To attract new carriers to local airports with insufficient demand, the local administrations reviewed options of reducing airport service charge and providing financial support for carriers. On Sep. 10, 2002, Korea Air Transport Division and the District of Gangwon established a financial support agreement.

Meanwhile, Korea Airports Corporation, the airport management institution, also works on joint marketing with local governments and carriers, as well as on building connect networks.[35]

2. Directions for Domestic Airport Development

2.1. Role of Domestic Airports

Korea has zoned the country. In each zone, airports were arranged in a hierarchical order and roles were also divided. The biggest characteristics are zones that have been consolidated with the development of ground transportation networks, and airport development projects that tend to focus on selection and concentration.

Airports play important roles in various fields including the economy, socio-culture, and science technology.

First, the economic role refers to the benefit of which the local community expects from airport development and repair · maintenance. A representative case would be saving time and cost by using air transport. This economic effect consists of direct and indirect effects. Direct effects are the result of economic activities conducted by carriers, airport management, resident companies and renters directly related to the air operations at the airport. Indirect effects are economic activities outside the airport that contribute to the airport, including service provided by travel agencies, hotels, and restaurants.

Second, the socio-cultural role refers to that of which connects countries and regions. As the airport is where domestic and foreign passengers first enter a region or country, it may easily determine the impression of the location. Therefore, various cultural criteria are considered in entry and departure procedures. Furthermore, in order to symbolize the country or region's culture and tradition, countries design the airport with traditional colors, designs and lines, follow the traditional architecture, and allot various facilities accordingly.

35. Lee Jae man, interview.

Third, science and technology related roles take a comprehensive role that combines industries of technology and management. That is, installing, managing and operating facilities in fields of civil engineering, construction, machinery, electrics, communication and electronics are covered. With the advancement of aviation technology, airports are equipped with high tech facilities and equipment. In addition to this, it conducts research and technological transference regarding technology fields such as aviation control, navigation safety facility, security · climate information · communication · computer · aircraft maintenance and service facilities and automation, leading scientific and technological development.

Thanks to economic growth, open-sky, and development of air transport methods, air demand will continuously increase in the future. To respond to such changing paradigms, airport operators will install new navigation safety facilities, develop technology and equipment, prepare and execute systems for faster passenger processing, and continuously invest in airport facilities.

2.1.1. Role of Multiple Airports in the Metropolitan Area

From the planning stage of Incheon International Airport, there has been a lively discussion about multiple airports in the metropolitan area. At first, Gimpo and Incheon Airports were planned to divide the int'l service by 25% and 75% each in 2005. Later, dividing int'l service became a problem as it will weaken Incheon Airport's function as a hub, cause passenger confusion, and lead to cost loss of the operators. Therefore, Incheon Airport solely took charge of int'l service and Gimpo, domestic.

From 2003, to improve the convenience of business passengers in Korea, Japan, and China, Gimpo Airport ran limited int'l service. At present, int'l service at Gimpo follows the 'Gimpo Airport's Int'l Chartered Service Operation Regulation, and the range is limited to Gimpo Airport's 2,000km radius to satisfy the targeted serviced country. The regulation was modified twice, alleviating restrictions on its service.

Recently, discussions on Gimpo Airport's int'l service induction and expansion have been in progress due to the increasing demand for Gimpo Airport's int'l service and discussions of Korea, Japan, and China and ASEAN countries' open-sky agreement. According to the current regulation, Gimpo Airport cannot service ASEAN countries. Yet, this calls for modification.

2.1.2. Implementation and Execution of the Airport Safety Management System

Contents regarding the safety management system in the Aviation Law are covered in Section 3: airport operation verification Article 111 enforcement regulation Clause 277. Each airport operator implements and executes the safety management system according to the airport safety operation standard, which was revised with the airport safety HQ announcement no. 2005-11. Airports that must construct an airport safety management system include Incheon Airport that is run by Incheon International Airports Corporation, and seven int'l airports run by Korea Airports Corporation (Gimpo, Gimhae, Jeju, Cheongju, Daegu, Muan, Yangyang).

2.1.3. Execution of Strategic Environment Assessment

When the 3rd Mid to Long-term Comprehensive Airport System Development Plan (2006~2010) was established and announced in 2006, the strategic environment assessment process regulation was revised. Thereafter, a strategic environment assessment was conducted and announced in the 4th Mid to Long-term Comprehensive Airport System Development Plan (2011~2015).

Key results include the following: considering environmental factors, reviewing changes in the future society and air transport industry, recognizing the importance of the environment in airport development policy making, and reflecting this to the four core values and four basic directions. The strategic environment assessment of airport development plans showed that there was little impact on existing airport related projects. On the other hand, there was visible impact on the environment in new airport projects.

2.1.4. Rights and Disposal of Local Airport Operation

In Aug. 2008, the Ministry of Land, Transport and Maritime Affairs announced that operation rights of one or two local airports are to be sold to the private sector as part of the public enterprise advancement measures. This means that it leaves the ownership of the airport facility with the government and the corporation, and transfers the operation rights for a given period. That is, the government continues to play its role as the airport owner and invests in airport facilities and secures navigation safety. The operator takes over the autonomous management and operation of aircraft usage facilities such as runways and passenger facilities such as terminals.

For the first time in Korea, Cheongju Airport's operation rights was sold by Korea Airports Corporation to Cheongju Airport Management on Feb. 1, 2012. The company will operate the airport for the next 30 years.

2.2. Development Plans of Domestic Airports

The central zone is the main source of Korea's aviation market, which has great potential for development. It is the base of international interaction and the entry into or exit from the global air market, and acts as the key base of domestic air transport. The role of the airport is crucial in the metropolitan area. In Gangwondo, the competitive edge of air transport is weakened by expanding expressways and railways, and this tendency is more likely to continue. With Incheon Airport and Gimpo, Cheongju Airports playing the key role ,the central zone is expected to tow national economic development.

Southwest zone's air transport sector was weakened due to geographic limitations and dual operation of near-distance airports. Nevertheless, the area has potential with the development of Saemangum and Yeosu Expo. Muan Airport at the center of Southwest's regional development, Gwangju, Yeosu, Gunsan airports are to follow.

In the Southeast zone, focus routes are to be reinforced in each airport considering the development of ground transport, and development airports to serve the 2nd largest economic area. If the new Southwest zone airport's site be finalized, the int'l service can be consolidated. However, as Ulsan, Pohang, Sacheon's domestic services mainly run to Gimpo, it will most likely remain as is. Airports in this area include Gimhae, Daegu, Ulsan, Pohang, and Sacheon.

The main connection between Jeju Island and the mainland is air transport, and the airport is Jeju's core infrastructure. Jeju Airport's status should be strengthened to lead future growth, supporting the success of Jeju Int'l Free City (Mar. 13, 2007) and the island's being awarded as one of the New 7 Wonders of Nature (Nov. 11, 2011).

New airport development plans include those of Jeju and the Southwest zone. The Korea Research Institute for Human Settlements expected Jeju Airport to reach its saturation in 2019, with its annual movement reaching 172,000 times to saturate the runway as a key facility. The current passenger demand is 17.2 million, exceeding its max. capacity of 12.54 million. As the number of tourists are rapidly increasing with the Island's selection as one of the New 7 Wonders of Nature and three awards in UNESCO's natural science sector, the passenger demand in 2030 is expected to reach 31.35 million (domestic 30.24 million and int'l 1.11 million). Taking this into consideration, there was a proposal to construct a new airport or to expand existing airports to prepare for the saturation after 2019. Considering the current demand distributions, one option suggests the separation of domestic and int'l services between the two airports. In case of expansion, it will costs less and ensure utilization of existing facilities, but the effect will be relatively small and it will be difficult for aircrafts to move on ground. Whereas new airport construction may have less noise damage and altitude limitation with larger space, its drawbacks include urban center sprawl and high cost.

Financing measures will basically rely on national budget. The idea is that the government should partially or entirely support the project in accordance with the national need. The proposal suggests national support through fiscal loan and government subsidy for airport construction. Private capital attraction can also be considered, but the target area should be limited to a few facilities such as passenger and cargo terminals. Land that is not needed for airport operation should be opened for commercial development. For this, the option suggests selling some of the background support complex, and using the entire sales income for airport infrastructure investment or selling Jeju Airport's site for the new airport.

The new Southeast zone airport may have high cancellation rates, lack aircraft operation safety due to obstacles that violate the surface obstacles limitation standard on the northern side of the runway and limitations in further expanding Gimhae Int'l airport in response to facility saturation. There are further difficulties in assigning slots for civil aircraft due to shared usage with the military and aircraft noise in the vicinity – therefore, to solve the problems and respond to the rapid increase of int'l demand, there is a need to build a new airport. Moreover, Gimhae Int'l Airport is not a base airport that is only servicing Busan area's demand. Therefore, a new airport is necessary in focusing on the int'l demand in the Southeast zone and serving as a hub in place of Incheon International Airport, if necessary.

Out of the 14 local airports, 11 excluding Gimpo, Jeju, and Gimhae are suffering deficits, and calling for consolidation, closure, or change of usage. Local airports' air demand began to decrease due to the opening of various expressways in 2001 (Daejeon-Jinju, West Coast, Central inland, Central, Daegu-Pohang etc.) and the advent of alternative modes of transport such as the Seoul-Busan High-speed Railway in 2004. Therefore, local airports are now in need of consolidation, closure, or change of usage.

Gwangju and Muan Airports can be consolidated by moving Gwangju's domestic service to Muan and establishing the foundation for Muan to serve as the base for the Southwest, which is in accordance with its initial mission. Through this process, inefficiency and poor operation that are caused by the dual system can be prevented. Still, increased access time and demands from Gwangju's local community will be obstacles. Considering that the accessibility to Muan Airport has been improved with the opening of the new Gwangju-Muan Airport in 2009 (travel time reduced to a quarter, 25 minutes) and with the expected decrease in demand at Gwangju due to the completion of the Osong-Gwangju Expressway in 2014, consolidation to Muan will be effective.

If Gwangju Airport's domestic service is to be transferred, ways to use terminal and landside facilities that will be unused, including unused land should be reviewed. Also, there is a need to track and refer to issues regarding the Ministry of National Defense Gwangju military base transfer plan. Nonetheless, Gwangju Airport is close to the urban center, and has favorable life, culture, and commercial conditions.

In order to cut the deficit at the two airports, there is also a need to consolidate Yeosu and Sacheon Airports as air demand is expected to continuously decrease with the opening of Daejeon-Jinju Expressway (Nov. 11, 2011, 181km), the Jeolla Double-track Railway (Nov. 5, 2011, Suncheon-Yeosu) and the Seoul-Jeolla line (2015, Jinju-Gwangyang).

In addition, there is a need to consolidate Pohang and Ulsan Airports due to deficits. This is because Pohang Airport's demand is likely to decrease for the following reasons: as the new East Daegu-Busan section in the Seoul-Busan High-speed Railway (Oct. 2010) phase 2 will shorten travel time by a max. of 1 hr 30 min. with the New Gyeongju and Ulsan Stations, the Seoul-Busan high-speed rail system will be completed in 2014 and the East Coast South line will shorten train travel time by connecting Pohang.

Table 4-2 | Development Plans by Zones

Airport		Development Plan
Central Zone	Incheon	• Reinforce its status as the Northeast Asian hub by executing the phase 3 project • Attract companies for phase 1 logistics complex to position airport as logistics hub and develop phase 2 logistics complex depending on the demand • Develop unused land as leisure complex • Improve passenger and cargo processing service, combing high-tech IT and BT
Central zone	Gimpo	• Process short-haul int'l business demand within the range of utilizing existing unused facilities • Review additional F grade ramp construction by efficiently using aprons • Promote green airport as part of the low carbon green growth project
Central zone	Cheongju	• Actively attract Int'l LCC lines as the base airport of the central region • Support the formation of the aircraft maintenance complex to vitalize the airport, and improve accessibility from Chungju and Jaecheon by building the northern entry road • Conduct feasibility study on supplementing facilities such as runway expansion
Central zone	Yangyang	• Vitalize int'l interaction by actively attracting int'l chartered service • Support supplementary projects to improve small air transport business's operation conditions • According to the airport's operation situation, improve the management environment with the airport operation rating system

Airport		Development Plan
Central zone	Wonju	• Process air demand in Wonju area and Jeju • Improve operation efficiency and user convenience
Southwest	Muan	• Develop as the central airport in the zone that will tow the zone's development
Southwest	Gwangju	• Consolidate with Muan Airport
Southwest	Gunsan	• Process air demand in Jeonbuk and Jeju • Review supplementing airport facility if industries in Saemangum and vitalize the Free Economic Zone
Southwest	Yeosu	• Process demands in Yeosu, Gwangyang, Suncheon, the metropolitan area and Jeju • Devise measures to reduce noise in the airport vicinity
Southeast	Gimhae	• Reinforce the demand processing function for the int'l demand in the Southeast zone • Increase efficiency of domestic service facilities considering changes in domestic demands such as the initiation of KTX phase 2 • Devise measures to reduce noise in the airport vicinity
Southeast	Daegu	• Attract int'l LCC lines, expand short-haul int'l routes, support int'l interaction in the zone • Absorb demand in the vicinity by strengthening Jeju routes in the domestic sector
Southeast	Pohang	• Connect the metropolitan area with Jeju, considering the decrease of air demand as the demand transferred to KTX New Gyeongju Station
Southeast	Ulsan	• Strengthen Gimpo service considering the decrease in demand due to the initiation of KTX phase 2 • Cover open sewage to satisfy air safety demand, suspend static zone's gradient
Southeast	Sacheon	• Maintain demand processing in the region for the metropolitan area and Jeju
Jeju	Jeju	• Create int'l demand, increase usage of int'l line facilities • Respond to the increase in domestic demand by maximizing the usage of airport facility and increasing capacity • Improve convenience when using the airport by conducting the domestic terminal improvement project • Devise measures to reduce noise in the airport vicinity

Source : Ministry of Land, Transport and Maritime Affairs, the 4th Mid to Long-term Comprehensive Airport System Development Plan, 2010

Chapter 5

Case Study on the Success of Incheon Airport

1. Construction System of Incheon International Airport
2. International Status of Incheon International Airport
3. Success Factors of Incheon International Airport

Case Study on the Success of Incheon Airport

1. Construction System of Incheon International Airport

1.1. Background of Incheon International Airport Construction

In the '80s, Gimpo Airport faced the need for expansion and funding due to the rapid increase in demand. The airport also encountered restrictions as high noise aircraft operation and night time operation were prohibited due to local residents' complaints.

The feasibility study on a new airport construction in the metropolitan area began in 1969, but it was delayed because of the expansion of Gimpo Airport. Construction began in Jun. 1990 as Yongjong Island was selected as the site for the new airport.

The new airport was planned to be built along the coast where 24 hour operation is possible and there is no noise pollution.

The government decided to build the new metropolitan area airport in Jan. 1989. Thereafter, from Jun. 1989 to Apr. 1990, feasibility studies, preliminary research, and candidate selection were conducted (four times) and finally, Yongjong Island was selected. The criteria for selecting the site were air space, obstacles, restrictions, climate, topography, construction cost (10 items) and a site within a 100km radius from Seoul. Preliminary research area and candidate sites included 22 areas in the Gyeonggi province near Seoul and Chungnam, as well as seven candidates including Yongjong, Shihwa 1, Shihwa 2, Songdo, Songsan, Icheon, and Balan.

After the selection process, the need to replace the role of processing metropolitan demand and building a world class hub airport to suit Korea's progress and status in the Northeast Asian region arose.[36]

36. Korea Transport Institute, History of Transportation Development, 100 Cases, 2006.

Incheon International Airport began its construction on Nov. 12, 1992 aiming to secure an alternative space to alleviate Gimpo's saturated demand. After the 8 years and 4 months' long construction, the airport opened on Mar. 29, 2001.

Table 5-1 | Overview of Incheon International Airport Development

Classification	Content
Project Executor	Government
Project Object	Incheon Airport
Period	Nov. 12, 1992~Mar. 29, 2001
Location	Yongjong Island
Objective	Resolve Gimpo Airport's explosive increase in demand and local residents' complaints about noise
Method	According to the Basic Plan

Source: Incheon International Airports Corporation, Airport Planning Group

Figure 5-1 | Aerial Photo of the 1993 Incheon International Airport

Source: Incheon International Airports Corporation, Airport Planning Group

1.2. History of Incheon International Airport Construction

The government, having decided to build a new airport in Jan. 1989, conducted four feasibility studies from Jun. 1989 to Apr. 1990 in order to select a site. The criteria for selecting the site were air space, obstacles, restrictions, climate, topography, construction cost (10 items), and a site within a 100km radius from Seoul. Preliminary research area and candidate sites included 22 areas in the Gyeonggi province near Seoul and Chungnam, as well as seven candidates including Yongjong, Shihwa 1, Shihwa 2, Songdo, Songsan, Icheon, and Balan.

Yongjong Island was selected for the following reasons: its location on an island, being "aircraft noise" free and large land of 170 million pyeongs (56,168,000m^2). On Jun. 14, 1990, Yongjong Island was selected as the Incheon International Airport's construction site. In order to promote its construction, the New Airport Construction Planning Group was established under the Ministry of Transport. Base design began on Nov. 16, 1990 and was completed on Dec. 14, 1991. To oversee the construction, the New Airport Construction Corporation was established under the Korea Airport Corporation and officially began its operation as the Metropolitan Area New Airport Construction Corporation on Sep. 1, 1994. The New Airport Construction Corporation installed an Incheon Corporation Base Plan Revision · Supplementation Team, reviewed the Base Plan and made revisions. The Base Plan (phase 1) was approved in Oct. 1995 and was announced to the Ministry of Construction and Transport on Nov. 28, 1995. On Feb. 1, 1999, along with the legislation and execution of Incheon International Airports Corporation Law, the Incheon International Airports Corporation was established, consolidating the constructor and operator for the Incheon International Airport. With phase 2 successfully completed, Incheon International Airport held the opening ceremony on Mar. 23, 2001, and opened on Mar. 29, 2001. Due to explosive growth, the Base Plan for phase 2 was announced on Dec. 31, 2001 and the revised Base Plan was finalized on Sep. 28, 2005 after five discussions. In Jun. 2008, phase 2 (concourse A, runway No. 3, cargo terminal and nearby facilities) was completed and the facilities are now under operation. As of 2012, phase 3 expansion is underway.

Table 5-2 | History of Incheon International Airport Construction

Year	Content
Jun. 14, 1990	Construction site finalized (Yongjong Island, Junggu Incheon City, Shinbul Island, Yongyu Island area, 17 million pyeongs)
Jun. 21, 1990	New Int'l Airport Construction Planning Group established (Ministry of Transport)

Year	Content
Dec. 14, 1991	Korea Airport Corporation Law legislated and announced, Korea Airport Corporation designated as the executor of the new airport construction project
Jan. 31, 1992	New Airport Construction HQ established in Korea Airport Corporation
Sep. 1, 1994	Metropolitan Area New Airport Construction Corporation established
Nov. 28, 1995	Basic Plan revised (2nd)
Feb. 1, 1999	Incheon International Airports Corporation established
Mar. 29, 2001	Opening
Dec. 31, 2001	Phase 2 Basic Plan announced
Sep. 28, 2005	Basic Plan revised (5th)
Jun. 2008	Phase 2 construction complete and operation initiated
Jun. 30, 2009	Phase 3 Basic Plan announced
Jun. 8, 2010	Phase 3 airport facility base design initiated

Source: Ministry of Land, Transport and Maritime Affairs, the 4th Mid to Long-term Comprehensive Airport System Development Plan establishment, 2010

1.2.1. Phase 1 Construction

Phase 1 construction began as Yongjong Island was finalized as the construction site on Jun. 14, 1990. The base design was prepared from Nov. 1990 to Dec. 24, 1991, and the construction began in Nov. 1992 with the visionary mission of establishing the "future Northeast Asian air transport hub." Till the historical opening in Mar. 2001, it took 100 months and cost 5 trillion 600 billion won (5.6 billion USD).

In proportion to the construction period spanning over eight years and four months, the scale of workforce, equipment, and materials used for the project was astronomical. It was even called "the greatest construction project in Korea's 5,000 years of history." On average, 14,000 employees worked daily, reaching an annual total of 13.8 million; 2.53 million equipment were used; 9,747m^3 of aggregate (gravel and stones) filled 1 million 15t trucks; and 180 million m^3 of sand filled 18 million 15t trucks. The total length of steel pipe piles (32,557) was 1,682km, four times longer than that between Seoul and Busan, and the length of communication cables was 11,079km, 24 times longer than that between Seoul and Busan. A total of 480 thousand sheets of designs were drawn in the process; if piled up, they would reach the height of 560m (a 180 floor building's height). Construction cost for phase 1 was 5 trillion 60 billion won. With such amazing investment and implementation of materials, the massive site that was over 17 million pyeongs (56,168,000m^2) finally took shape.

On the total of 3.55 million pyeongs (11,724,000m^2), a super-size passenger terminal which is Korea's biggest building with the area of 150 thousand pyeongs (496,000m^2) and length of 1.06km - three times larger than the size of the 63 Building, took place. The cargo terminal can annually process 2.7 million tons, and the two runways spread over 3,750m. Hence, the airport can accommodate large aircrafts.

Incheon Airport is located on a site of 56,199,000m^2, including 9,917,000m^2 of nearby land and tide land of 6,281,000m^2. During high tide which is created by filling the sea between Yongjong and Yongyu Islands (in the Gyeonggi Bay), the average depth of water is 1m. The area is 18 times larger than the size of Yoido, and is blocked from the sea by sea walls spanning over 17.3km (south 6.08km, north 7.3km, east 3.9km). On this tide land, about 180 million m^3 of sand was piled over 5m to build the site. Out of Incheon Airport's total area of 56,199,000m^2, the sea part that is 46,281,000m^2 is consisted of soft clay layers comprising of fine-grained soil with high moisture content and thickness of 5m (max. 1.5m) on average. The improvement method used for site reclamation was sand drain (SD)+pre-loading (PL)+Plastic Board Drain (P · B · D)+pre-loading(PL). The reclamation, which began in Nov. 1992, started as three work sites (south · north sea wall and eastern ring road construction) and ended as eleven work sites. Reclamation for phase 1 was completed in the end of 2000.

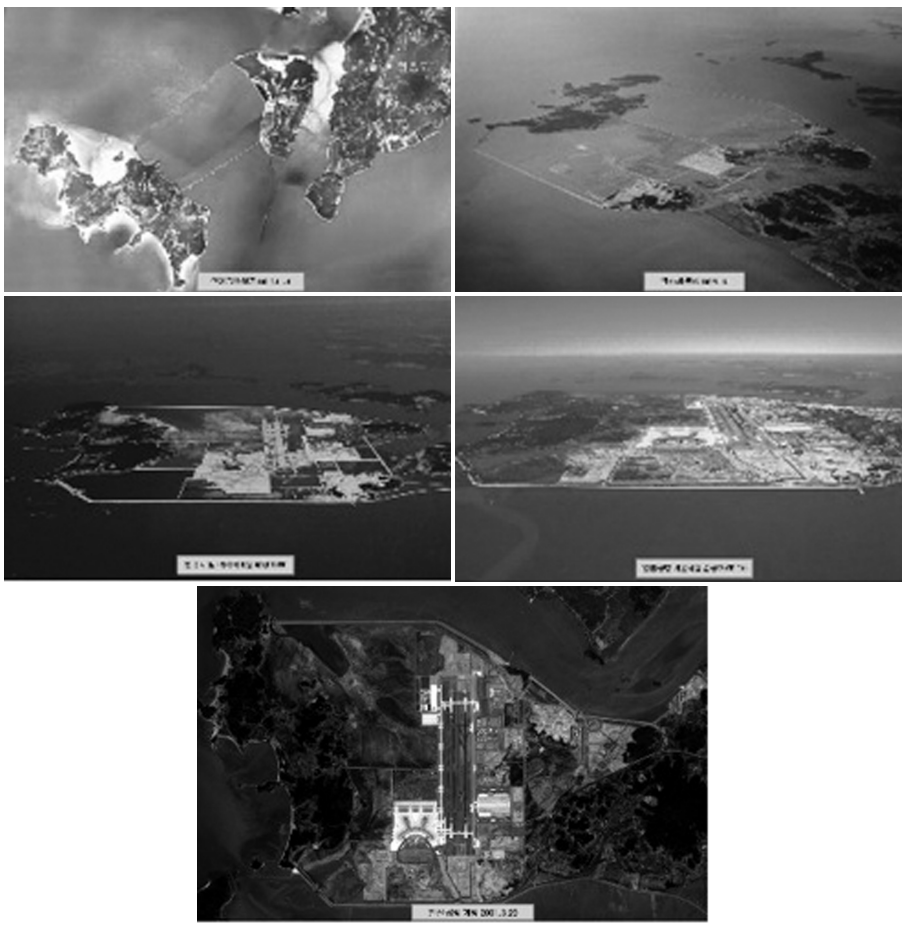
Incheon International Airport's four runways are allotted towards north and south, two of them to the east and the other two to the west of the passenger terminal. In phase 1, runways 1 and 2 were built. The inner distance of the runways is 2,075m, allowing simultaneous landing and taking off of aircrafts even during instrument flight. The distance between the two nearby runways is 414m, allowing simultaneous landing and taking off of aircrafts during instrument flight. With this allotment, one aircraft can land and take off per second. Once construction is completed up to runway 4, Incheon International Airport will have the capacity to operate 1,500 aircrafts per day, and 530 thousand aircrafts per year on average. The two long and wide runways built in phase 1 are each 3,750m long and 84m wide (including the shoulder), with a 105cm think Asconoid pavement. The apron's area is 1,203,000m^2, and there are 44 boarding gates and 16 remote ramps.

Incheon International Airport's passenger terminal reflects Korea's best construction technique and information communication system, elevating Korea's construction technology even higher. The design concept of the passenger terminal aimed to convey Korea's traditional image by grafting traditional cultural methods, and the exterior was designed to have flexible rhythm, stability, and artistic shape, resembling the mast of a large ship. The ground floor of the passenger terminal is for int'l arrivals, 2nd floor for domestic departures, and 3rd floor for int'l terminal departures, with an addition of a medium floor between arrival and int'l arrival floors. The floors are divided by moving lines and their

functions, and the underground level houses the train tunnel connecting the terminal to the concourse and luggage transport facilities.

The control tower stands in front of concourse B (to be built), on an area of 2,760m^2, with a height of 100.4m, a diameter of 9m, and with 1 floor underground and 22 above the ground. It houses high tech control facilities with wind-resistant design and complex vibration control device (HMD), running 24 hours. The control tower that consists of an octagonal iron frame and ferroconcrete structure is designed to convey the oriental beauty. To be more concrete, it takes the shape of leaping upwards.

Figure 5-2 | Construction Process of Incheon International Airport at Phase 1



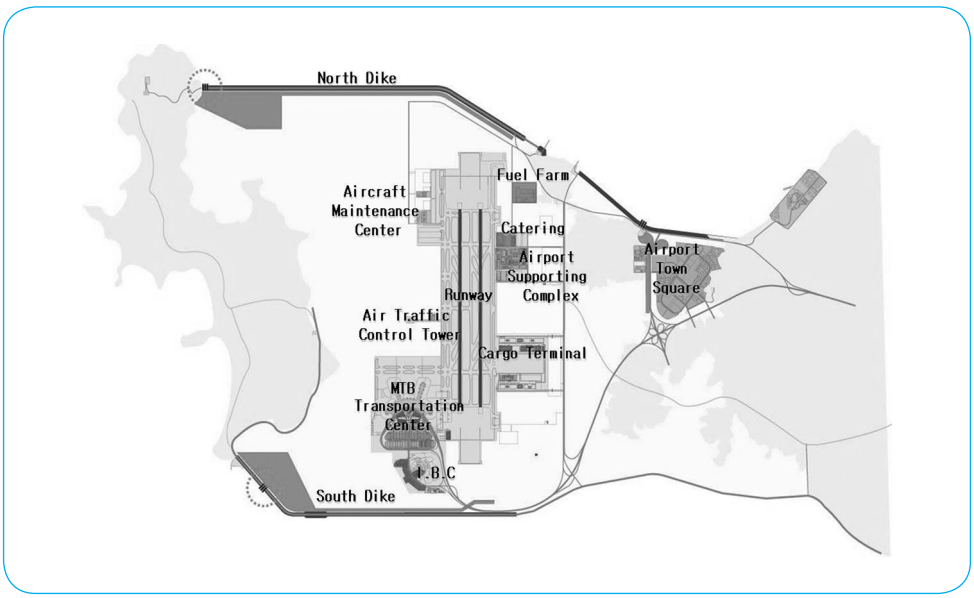
Source : Incheon International Airports Corporation, Airport Planning Group

Table 5-3 | Facilities and Capacity of Incheon International Airport at Phase 1

Scope		Phase 1
Facility	Site scale	11,724,000m^2
Facility	Runway	2 (3,750m×60m each)
Facility	Passenger terminal · gate	496,000m^2 · 44 gates
Facility	Int'l business complex	165,000m^2
Capacity	Passenger	30 million persons/year
Capacity	Cargo	2.7 million t/year

Source: Incheon International Airports Corporation, Airport Planning Group

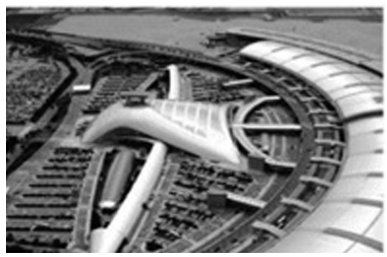
Figure 5-3 | Facility Layout of Incheon International Airport at Phase 1



Source: Incheon International Airports Corporation, Airport Planning Group

Figure 5-4 | Key Facilities of Incheon International Airport at Phase 1

Passenger terminal



Transportation center

Cargo terminal

Runway, taxiway

Source: Incheon International Airports Corporation site

1.2.2. Phase 2 Construction Project

Phase 2 construction aims to flexibly respond to the sharply increasing air demand since the airport's opening in 2001, and to compete with airports nearby. The government quickly conducted feasibility studies, and announced the execution of phase 2 later that year. The phase 2 expansion project began in 2002, and was completed in Jun. 2008, investing 3 trillion won per year and 3.5 million workforce, building a 4,000m grade runway 3 and a concourse with 30 boarding bridges, expanding cargo terminal and 60 passenger and cargo plane ramps. In contrast to Heathrow (UK) which opened terminal 5 before Incheon Airport, but had problems with lost luggage and Singapore Changi Airport, which had difficulties in carrier relocation, Incheon Airport's opening was perfection itself.

Based on the success of phase 1 construction, the airport systematically managed the multiple interfaces and completed a perfect project without any delay in work process or degradation of construction quality. This was possible as many construction details were

simultaneously executed, showing the characteristics of airport construction projects. Especially, the executors always seeking newest methods, implemented the sand and stone transportation method by using conveyor belts for the first time in the country. This ensured environmental protection and saving of over 57 billion won. After the successful completion of phase 2 that was proved through test operations of each facility, system testing for verifying the facilities' compatibility and test operation in a hypothetical realistic situation, the Corporation prepared to start its operation perfectly and began its new leap towards the world's best airport on Jun. 20, 2008. With the completion of phase 2, Incheon International Airport positioned itself as a large hub airport in terms of scale. The annual capacity radically increased from 30 million to 44 million passengers, 2.7 million tons to 4.5 million tons of cargo, and 24,000 to 41,000 aircraft movements.

Supplementing routes and building air networks became easier by securing operation efficiency and sufficient airport facility for further air demand. The transit and trans-shipment networks were also reinforced.

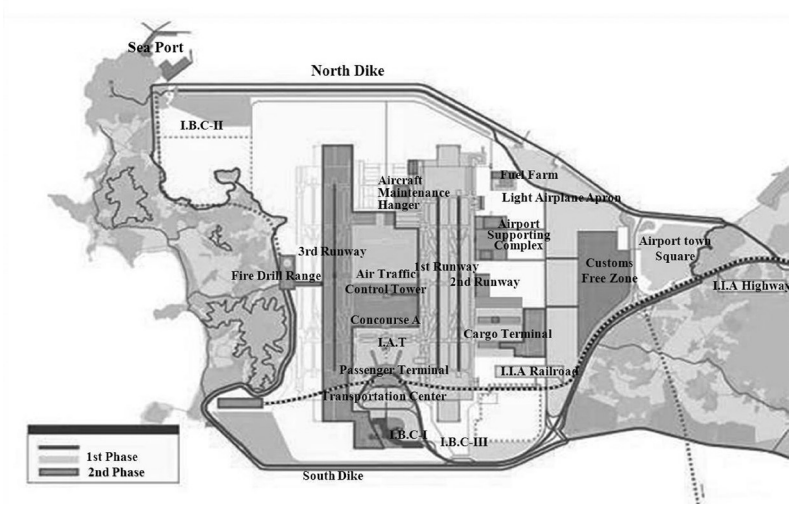
Moreover, based on continuous reinterpretation of the existing airport, an ambitious project aiming to change Incheon Airport into a new concept airport was executed. To transform the airport into a multi-complex with IT, facilities, service, culture, leisure and shopping, phase 2 construction, carrier relocation, operation efficiency reinforcement, world's top level concessions organization, culture and arts program implementation and IT based ubiquitous concepts, there was an overall change in the entire airport, creating a new concept space as an "airport beyond an airport." Incheon Airport, therefore, is now respected for proposing a new paradigm for future airport operations.

Table 5-4 | Facilities and Capacity of Incheon International Airport at Phase 2

Scope		Phase 2
Facility	Site scale	9,568,000m^2 (2.9 million pyeongs)
Facility	Runway	1×(4,000m×60m)
Facility	Passenger apron	1,170,000m^2 (0.35 million pyeongs)
Facility	Concourse	166,000m^2
Facility	Cargo terminal	1,267,000m^2 (0.38 million pyeongs)
Capacity	Passenger	400 million persons
Capacity	Cargo	4.5 million tons

Source: Incheon International Airports Corporation, Airport Planning Group

Figure 5-5 | Incheon International Airport Phase 2 Facility Layout



Source: Incheon International Airports Corporation, Airport Planning Group

Figure 5-6 | Construction Site of Incheon International Airport at Phase 2

Source: Incheon International Airports Corporation site

Figure 5-7 | Facilities of Incheon International Airport at Phase 2 in 2008

Source: Incheon International Airports Corporation, Airport Planning Group

1.2.3. Phase 3 Construction Project

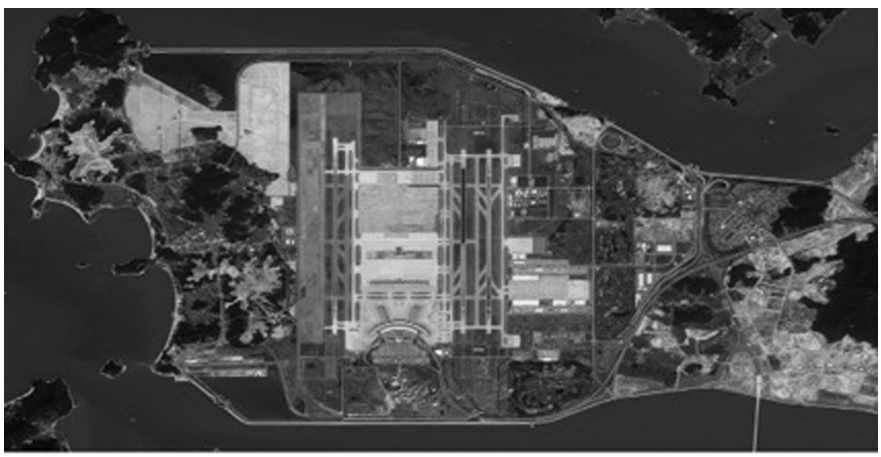
Incheon International Airport's expansion phase 3 aims to firmly position the airport as the hub airport of Northeast Asia. The Ministry of Land, Transport and Maritime Affairs finalized discussions with related authorities such as the Ministry of Strategy and Finance to execute the project, and finalized · announced the Basic Plan on Jun. 3, 2009 after the assessment of the「Social Overhead Capital Construction Promotion Committee」.

Key contents include building a new passenger terminal 2 north to the current passenger terminal; building new aprons; supplementing access facilities (roads and railway) to connect terminal 1 and the new terminal 2; and forming phase 2 of the airport's background logistics complex to develop a high added value global logistics base. Especially, passenger terminal 2 will be highly energy efficient by using new recycled energy such as solar energy based on the low carbon green growth policy, and the airport will be newly established as an environment friendly green airport with bicycle roads in the airport and a magnetic levitation train. The total project cost of about 4 trillion won will be funded by Incheon International Airports Corporation's earnings revenue. Design will begin later this year and construction will start in 2011, aiming for completion in 2015, but the completion period is flexible as it depends on the future increase in air demand.

Once phase 3 is complete, the capacity will increase from 44 million passengers to 62 million, and 4.5 million tons of cargo to 5.8 tons annually. Expected effects include creation of about 80,000 employments during the construction period, about 7 trillion 800 billion won of production induction effect, and added value of about 3 trillion 300 billion won.

Also, access transportation will be improved in order to enhance accessibility to Incheon International Airport. For this purpose, the Incheon International Airport Highway was opened in Nov. 2000, airport railway phase 1 opened in Mar. 2007 (Incheon Airport↔Gimpo Airport), and Incheon Bridge, the world's 5th longest cable-stayed bridge, successfully opened in Oct. 2009. Airport railway phase 2 (Gimpo Airport↔Seoul Station) opened in Nov. 2010, and endless efforts are made to improve the convenience for air passengers using the airport, such as building the 2nd Korea City Air Terminal.

Figure 5-8 | Aerial Photo of the 2010 Incheon International Airport



Source: Incheon International Airports Corporation, Airport Planning Group

1.2.4. General

Construction phase 1 began on Nov. 22, 1992 with the ground breaking ceremony. Two runways, one passenger apron and one passenger terminal were completed on a site of 3.35 million pyeongs along with key facilities for airport operation on Jun. 30, 2000. After a comprehensive test, the airport opened on the historical day of Mar. 29, 2001.

- The airport highway, which is the High-speed Highway No. 130, spans over 40.2km. With six or eight two way lanes, the highway construction began in Dec. 1995 and was opened on

Nov. 2011. The highway includes Yongjong Bridge (4,420m, the world's first 3 dimension self - anchored suspension bridge), and Banghwa Bridge spanning over 2,559m.

- The airport railway opened the Incheon Airport-Gimpo section (40km) on Mar. 23, 2007, and expanded the Gimpo Airport-Seoul Station section on Dec. 29, 2010, spanning over 58.0km.

With the aims to process air demands in 2005, construction of phase 2 began in 2002, expanding the site by 2.90 million pyeongs that consists of one runway and one concourse by Jun. 20, 2008. "In order to build a perfect airport utilizing IT, the 2nd stage of the program supplemented the defects in IT- which turned out to be a weak point in the 1st stage, and implemented the U-Airport basic plan concept."[37]

Construction phase 3 aims to process air demands in 2030 and is to be completed by 2017. The additions will consist of passenger terminal 2, a passenger apron, an access road to passenger terminal 2 and railway expansion.

The final phase will be conducted flexibly according to the air demands, aiming to process 100 million passengers and 10 million tons of cargo per year on a site of 14.37 million pyeongs.

Table 5-5 | Construction Scale in Each Phase

Classification	Phase 1	Phase 2	Phase 3 (plan)	Final Phase (total)
Site Scale	11,724,000m² (3.35 million pyeongs)	9,588,000m² (2.90 million pyeongs)	1,410,000m² (430,000 pyeongs)	47,428,000m² (143.7 million pyeongs)
Runway	2 (3,750m×60m)	1 (4,000m×60m)	-	4~5
Passenger Apron	1,267,000m²	1,170,000m²	690,000m²	-
Passenger Terminal	496,000m²	-	350,000m² (2nd)	-
Concourse	-	166,000㎡	-	-
Project Cost	5 trillion 632.3 billion won	3 trillion 91.8 billion won	4trillion 33.6 billion won	-
Expressway	40.2km (6~8 lanes)	-	-	-
Railway	-	58.0km (double track)	-	-

Source: Ministry of Land, Transport and Maritime Affairs, the 4th Mid to Long-term Comprehensive Airport System Development Plan establishment, 2010

37. "Jae hee Lee" Interview.

Table 5-6 | Objectives of Incheon International Airport Capacity Expansion

Classification	Phase 1	Phase 2 (once/total)	Phase 3 (once/total)	Final Objective
Annual Passengers (10,000 persons)	3,000	1,400/4,400	1,800/6,200	100 million persons/year
Annual Cargo (10,000t)	270	180/450	130/580	10 million t/ year

Source: Ministry of Land, Transport and Maritime Affairs, the 4th Mid to Long-term Comprehensive Airport System Development Plan establishment, 2010

1.3. Incheon Airport Construction Related Organization and Laws

1.3.1. New Airport Construction Planning Group and Metropolitan Area New Airport Construction Corporation

The government selected Yongjong Island as the final site for the new airport. Thereafter, it executed the construction of Incheon International Airport by establishing the Ministry of Transport (currently the Ministry of Land, Transport and Maritime Affairs)-affiliated New Airport Actual Working Group on Jun. 21, 1990. The group was reorganized into the New Airport Construction Planning Group on Jan. 11, 1992, consisting of three departments (planning · construction 1 · construction 2) and worked on the base design. Later, the group was reorganized into planning, development, and construction facility departments, working on key policy making for the new airport construction project.

The government worked on establishing the New Airport Development Corporation (a temporary title), which can promote efficient and fast construction of the new airport, conduct projects such as airport, road, railway construction and operation, process aircrafts and other subsidiary projects by investing 51% from the national budget in order to promote a specialized airport construction institution. However, it was suggested that the Korea Airport Corporation should play this role as it was in charge of domestic airports' management and operation. Accordingly, the plan was suspended.

On Dec. 14, 1991, the Korea Airport Corporation Law was amended, allowing project execution to be done by the Metropolitan Area New Airport Construction HQ within Korea Airport Corporation in 1992. The Korea Airports Corporation, newly in charge of the new airport's construction, established the New Airport Construction HQ and retained the system within the corporation along with the Ministry of Transport's New Airport Planning Group.

The planning group governed basic policies and issues regarding related authorities and works of the Minster of Transport based on the law. The HQ governed design for project execution, project planning, compensation, and overall administrative process as well as construction itself. On Sep. 24, 1993, a need for increasing the workload and reinforcing organization arose. As a result, it expanded from one office · one division · one department · 26 groups · 146 employees to two offices · eight divisions · 32 departments · 203 employees.

The government promoted the New Airport Construction Corporation to resolve the work limit of the New Airport Construction HQ in the corporation. Aiming to transfer the operation rights to Korea Airport Corporation after completing the construction, the Metropolitan Area New Airport Construction Corporation Law was proposed. The Metropolitan Area New Airport Construction Corporation Law was legislated on Aug. 3, 1994, and the Metropolitan Area New Airport Construction Corporation was established on Sep. 1. On Feb. 1, 1999, the Incheon International Airports Corporation was established, consolidating the constructor and operator of Incheon International Airport.[38]

1.3.2. Metropolitan Area New Airport Construction Corporation Law

To enhance the efficiency of the new airport construction project, the Metropolitan Area New Airport Construction Corporation Law was legislated on Aug. 3, 1994. However, this law was discarded when the Incheon International Airports Corporation Law was legislated and executed on Feb. 1, 1999. The Metropolitan Area New Airport Construction Corporation worked on the metropolitan area new airport construction, airport access transportation facility projects, and research · development on airport construction. The board consisted of the chair, vice chair, five members and one auditor. The fund for the corporation's operation and projects consisted of government subsidy, as well as capital from airport construction bonds and loans. On the day of its completion, the ownership was to belong to the government and the operation rights and debt were to be transferred to Korea Airport Corporation. The corporation was allowed to purchase the land for the project or fixture, applying the Land Appropriation Law that covers the appropriation of land. The corporation was to prepare each year's project plan and budget and acquire the approval of the Minister of Transport.

The organization of the law consists of project scope, corporation organization format, work details, funding measures, ownership of the new airport, collecting service charges, approval of project plans, capital loaning, and issuing airport construction bonds, regarding projects regulated by the Metropolitan Area New Airport Construction Promotion Law[39] legislated on May 31, 1991.

38. Incheon International Airports Corporation, Incheon International Airport Development History Phase 1 1992-2001, 2001.

39. Law no. 4384, legislated on May 31, 1991.

Also, the supplementary provision consists of administration related with the corporation's establishment, transference of rights and liabilities, employee employment exemption, and other amendments of the law.[40]

1.4. Financing the Development of Incheon International Airport

In Incheon International Airport's case, out of the total project cost of 6 trillion 771.2 billion won for phase 1 construction, the construction project cost excluding construction management cost was 5 trillion 632.3 billion won. In phase 2, from 2002 to 2008, 3 trillion 100 billion won was invested, and in phase 3 from 2009 to 2017, 4 trillion won will be invested in its expansion. The government paid for 40% of the phase 1 construction, and for 35% of the phase 2 expansion. After 2009, Incheon International Airports Corporation is paying the entire cost.

In Incheon International Airport's Construction Project, 40% is to come from the national budget, excluding project cost from the private capital. This subsidy was used to build the airport's basic facilities such as paying for compensation, site preparation and air field facilities. Especially, the government subsidy was greater in the initial stage in which a large amount of infrastructure investment is needed for compensation and site preparation. Every year, the overseas support scale was confirmed during the Incheon International Airport construction budget confirmation period. Support came from within a given scope of budget by a monthly and regular allotment.

Incheon International Airport's construction fund consists of the following: first, government support; second, Incheon International Airports Corporation as the project executor; and third, private capital for facilities financed by the private sector. 40% is from the government and 60% from the private sector, such as partial disposal of the Airport New City, loans from financial institutions, and issuance of bonds and foreign loans. Facilities funded by private capital are seven in total, including the cargo terminal, aircraft, fueling facility, cogeneration plant, in-flight meal facility, and cargo storage, as well as the airport highway and railway. All facilities, except the railway were completed by Dec. 2000. The railway was to take the form of a BTO along with the airport highway, but based on the judgment that private capital will be difficult to maintain business, Korail (a public enterprise) took it over. The project was converted from private capital to a national budget project (Korail as the operator of the Airport Railway), and section 2 was completed on Dec. 29, 2010, completing the entire line. In particular, the airport expressway was completely

40. Incheon International Airports Corporation, Incheon International Airport Development History Phase 1 1992-2001 and Office of Legislation Metropolitan Area Airport Construction Corporation Law.

funded by private capital through the New Airport Highway Co. Ltd. (established by 11 construction companies in Korea) excluding the national budget that was invested in the initial stage.

Incheon International Airport's construction loan was estimated to ensure propriety in scale. It included domestic and foreign loans within the range of principal and interest repayment capacity based on the financial analysis after the airport's opening.

Domestic loan means financing through the domestic financial market. It includes public capital management fund loan, bonds and financial institute loans. In the case of public capital, from the initial stage of construction to 1997, the issued industrial finance bond was purchased by the government with the capital, and Korea Development Bank supported the fund from bond sales to Incheon International Airport in the form of direct support (bonds). In terms of bonds, Incheon International Airports Corporation issued 50.1 billion won of land compensation bonds up to 1998 and construction related bonds during the initial stage. However, this was discontinued in 1995 as it was considered as an unfair trading practice (regarding 15.5 billion). After 1998, 750 billion worth of funding bonds were issued. Incheon International Airports Corporation prepared conditions for low interest long-term loans from banks with branches in the passenger terminal, and established a loan structure to fund the projects in a timely manner.

Foreign loans are funded through private loan and int'l bonds in foreign financial markets. The Airport Corporation, after acquiring the national grade of aa+ from R&I (Japan Rating & Investment Information, Inc.) in the beginning of 1997, had a 10 billion yen worth of Samurai Bonds in the given Japanese capital market (10-year term, bullet payment of principal, 3.05% of interest paid twice a year).

According to the Korea Airport Corporation Law, part of the airport operation revenue that is generated during the operation of Incheon International Airport Construction HQ under Korea Airport Corporation is invested in the Incheon International Airport Construction Project. A total of 62.5 billion won was invested (4.8 billion won in 1992, 36.1 billion won in 1993, and 21.6 billion won in 1994). As the Metropolitan Area New Airport Construction Corporation was established in Sep. 1994, Korea Airport Corporation stopped its investment. Also, out of a total of 660,000 pyeongs, the Airport Corporation gradually disposed of 267,000 pyeongs of land in the Airport New City (developed to secure residence area and living facilities for airport employees) from 1998.[41]

41. Incheon International Airports Corporation, Incheon International Airport Construction History Phase 1 1991~2001, 2001, P139.

2. International Status of Incheon International Airport

2.1. Status of Incheon Airport

As of 2011 (10 years since the opening), despite various obstacles that threatened air demand, the airport showed amazing competitiveness by ranking 2nd in the world with an int'l cargo performance of 2.50 million tons and int'l passengers of 35 million. It also ranked 33rd in the world for the number of annual passenger count. The performance is unprecedented, with sales of 1 trillion 500 billion won and a sales profit of 600 billion won.

Table 5-7 | Passenger and Cargo Movement at Incheon International Airport

Classification	2001	2003	2005	2007	2009	2011	Annual Average Increase Rate (%)
Annual Passengers (1,000 persons)	14,542	19,790	26,051	31,228	28,550	35,062	9.2
Annual Cargo (1,000 t)	1,186	1,843	2,150	2,555	2,313	2,539	7.9

Source: www.airportal.co.kr Aviation Information Portal System

As Incheon International Airport phase 2 expansion was completed, the passenger capacity increased from 300 million to 440 million persons/year, cargo capacity from 2.7 million to 4.5 million t/year, and aircraft movement from 24,000 to 41,000 · year, establishing the status as a large hub airport. In response to future air demand, sufficient airport facility was secured by supporting the expansion of routes and reinforcing transit and trans-shipment networks. Also, to reinforce the transportation network for Incheon International Airport that is 60km away from Seoul's urban center, the airport railway between Incheon Airport~Gimpo Airport and the Incheon Bridge (the world's 5th longest cable-stayed bridge) opened. This greatly improved accessibility and enabled fast and convenient airport usage.

Incheon Airport not only shows increase in air transport performance, but also serves 72.3% of the total number of entries and exits in Korea as of 2009. It also counts for 21.6% of the total import and export amount, fulfilling its role as the gateway to Korea. Along with its quantitative growth, the airport's ranking as world's 1st in the global airport service evaluation conducted by the ACI (Airports Council International) each year is surely notable. Incheon was ranked 1st in the world for five consecutive years in the most prestigious airport service category (so called the Nobel Prize in the Airport Field), an unprecedented feat. The airport was ranked 1st with a score of 4.99 out of 5, receiving a nearly perfect score, keeping the

rank as the world's best for five years from 2005 to 2009. Also, the airport won all three sections which it belongs to, including the comprehensive "World's Best Airport," "Asia-Pacific Region's Best Airport" and "Best Large to Mid-size Airport" awards. Along with this amazing achievement, Incheon Airport also won numerous prestigious global awards such as the world's best airport selected by the two prominent travel journals U.S. Global Traveler (4 consecutive years) and Business Traveler, Skytracks 2009 World's Best Airport and CAPA, accomplishing a grand slam and positioning itself as a prestigious brand representing Korea.

Incheon International Airport, seen as the biggest construction business during the country's 5,000 years of history, began construction in 1992. However, as it is a large scale government project with an investment of 8 trillion and 600 billion won, various debates and accusations about damaging the environment and disrupting the balance of national development kept arising. In 2001, Incheon International Airport opened under the government's firm resolution. The resolution was to preoccupy the position as Northeast Asia's hub airport by overcoming all objections and preparing the foundation to realize its vision of becoming a global airport corporation in ten years.[42]

Phase 3 construction was initiated to effectively respond to future demands. The airport also proved its excellence by accomplishing 80,000 hours non-stop operation and no accident in record.

42. Incheon International Airport, Incheon Airport performance, 2012, cited.

Figure 5-9 | Incheon International Airport's Position by Rank



1st — ASQ winner for eight consecutive years	2nd — 2nd busiest international cargo handler (as of 2011)
9th — 9th highest international passenger traffic (as of 2011)	87 — 87 airlines (as of January 2013)
176 — 176 destination cities (as of January 2013)	35,000 — 35,000 airport personnel
2.45 — 2.45 million air cargo (ton)	6.9 — 6.9 million transferring passengers
38 — 38 million passengers	1,500 — KRW 1,500 billion in total sales

Source: Incheon International Airport, Incheon Airport Performance, 2012

Despite exogenous obstacles such as the SARS scare in 2003, the novel influenza in 2009 and the global recession, air demand showed an annual increase of 7%, visualizing the status as Northeast Asia's hub. The airport retained surplus operation for eight consecutive years with the increase of net profit during the term based on stable air demand.

2012's key accomplishments are as follows: ranking world's 2nd in int'l cargo and 9th in int'l passengers with 83 carriers and 5.66 million transit passengers. Like this, the airport is showing its best performance in history. In the service sector, the airport won the ASQ for 7 consecutive years (2013, 8 winner) and even entered ACI's Hall of Fame. For airport

facilities, phase 3 was actively initiated by completing the terminal 2 design competition. In terms of operation safety, navigation safety facilities were run for 90,000 hours non-stop, and achieved Asia's first landing and take-off min. visibility of 75m.

Table 5-8 | Comparison of Incheon International Airport's Business Performance in 2001 and 2011

Classification	2001	2011
No. of Passengers	14.50 million persons	35.06 million persons (+242%)
Transit Passengers	1.63 million persons	5.66 million persons (+347%)
Carriers	47	78 (+31)
Sales	376.7 billion won	1 trillion 497.7 billion (+398%)
Net Profit during the Term	-140.6 billion won	390.6 billion (+378%)

Source: Incheon International Airport, Incheon Airport Performance, 2012

2.1.1. Competitive Advantage of Incheon Airport

Incheon Airport is located at the corner of Northeast Asia, geographically connecting the Americas and Asia. It is at the economic center nearby China's eastern province where there is high potential in demand. The airport has a great condition for developing into a hub airport. That is, geographic conditions, domestic demands, airport facilities, government support for service and operation, and flag carrier's competitive capacity altogether make Incheon Airport a hub airport.

Except for domestic demand, Incheon Airport is extremely competent in most of the items, especially excelling in service and operation. Also, the government's air network reinforcement policy that is focusing on int'l lines, is an aspect lacking in Japan or China.

In terms of transit passenger, which is one of the crucial criteria for being a hub, Incheon Airport is excelling in the hub airport competition among the three countries (Korea, China and Japan). In China, demand in the domestic sector is so high that it is difficult to meet the demand in the int'l sector. In the meantime, Japan's Narita Airport has reached its saturation, and the transit passenger count has been stagnated during the past five years. In contrast, Incheon Airport's transit passenger count is quickly increasing due to the int'l line concentration policy's full support.

European Airports can be categorized into mega, regional, and spoke hub airports based on the stage of hub-process. Mega hubs connect many cities and have 0.3 million or more movements per year, with a high service frequency per city. It maintains its hub status by

focusing on int'l lines. Once the hub status is secured through concentrated networks, the competitive advantage seems to be maintained due to the economy of scale.

As in the case of foreign airports, Incheon Airport is also continuing its policy of focusing on int'l lines until it secures an economy of scale and its network and movements reach a certain level.

2.1.2. Incheon Airport Hub Strategy

Northeast Asia still lacks an airport that is firmly positioned as the hub. Competition is becoming more severe, but Japan has failed due to the diffusion of int'l lines while China is prioritizing domestic lines. This leaves Korea's Incheon Airport to rise as the hub airport for Northeast Asia with competitive advantage.

At the national level, developing a hub airport strengthens the competitive edge of the aviation industry and service industry. Furthermore, it creates various impacts on the national economy. With air transport rising as the main form of transport, followed by roads and railways, the existing of hubs where passengers and cargo are concentrated can determine a country's national competitiveness in the 21st century.

Schiphol Airport in the Netherlands only has a national population of 170 million. However, this airport has become the hub airport of Europe, which transports 440 passengers (2.5 more than its own population). In Singapore, the hub industry takes up 9% of the GDP, and Changi Airport is creating employments for 0.22 million persons, serving as the center of the national economy along with Schiphol.

Based on diversified and advanced air networks, hub airports can strengthen their domestic service industries through travel · tourism and global economic activities of enterprises. Incheon Airport's economic impact consists of sales of about 18 trillion won from related industries in 2009, with about 31,000 employees that are contributing to the national economy by providing opportunities for convenient air travel, supporting stable import · export and global business.

Incheon Airport succeeding or failing as the hub airport of Northeast Asia is likely to be decided by 2020. Accordingly, the government is establishing concentration policies.

2.1.3. Hub Strategy

The government has been putting in major investments in Incheon Airport from the early 1990s. Incheon Airport has risen as, undoubtedly, a top level airport by ranking as world's best in airport service for seven consecutive years from 2005 on, and making net profit in its early stage.

The aviation industry has huge economic impacts. Countries in Asia are promoting national growth through the aviation industry, and such efforts are becoming visible through government led large scale airport development projects and hub airport promotion policies. As the country that preoccupies the aviation market is expected to preoccupy future wealth, the government has made various efforts to establish Incheon Airport as a hub. Incheon Airport is to complete its Northeast Asia hub status with other large airports such as Pudong and Narita.

Incheon Airport could secure its advantage in the competition by expanding open-sky, and properly utilizing threats. Now, the airport is maintaining a cooperative relationship with the government by establishing continuous growth and development strategies to achieve its status as Northeast Asia's hub airport.

3. Success Factors of Incheon International Airport

3.1. Partnerships between Airport Employees

Incheon International Airport has outsourcing contracts with 37 companies in three sectors (airport operation · facility maintenance and repair · information and communication) as of Jan. 2010. The number of employees working for these cooperating companies reaches up to 6,000. Outsourced areas include terminal operation, traffic management, cleaning, security and inspection, terminal and subsidiary building repair and maintenance, airport construction data management, information communication system repair and maintenance, and the expulsion of birds and other wild animals (with the airport fire dept.).

Incheon International Airport's active outsourcing is notable in its scale, diversity and performance. Operational capacity is also best in the nation. The success of outsourcing is considered as one of the key factors for Incheon International Airport's positioning as the world's best airport.

In the initial stage, outsourcing was more of a subcontracting concept called "hierarchical relationship," and services provided were simply 'services.' Continuous efforts were made to improve the outsourcing system, but change did not occur immediately. More than quality, the selection of collaborating companies depended more on cost savings and workforce management. Also, as the outsourcing contracts focused on the personnel or the quantity of service, it was difficult to satisfy detailed aspects in terms of service quality. Incheon International Airports Corporation decided that such outsourcing methods would never improve its service quality. Hence, it devised countermeasures and completely renewed the outsourcing strategy.

Incheon International Airports Corporation is implementing the SLA (Service Level Agreement) in the outsourcing sector from Jan. 2007, after a six months' period of testing from Jul. to Dec. in 2006. SLA means Service Level Agreement, a quantification of the minimum service quality acceptable by users. The existing focus on the number of workforce or quantity of work in outsourcing was shifted to service quality, which can also be seen as a kind of Smartsourcing.[43] This goes one step further from the traditional outsourcing.

Incheon International Airport could promote growth for both users and collaborating companies by using the symbiotic nature of Smartsourcing.

3.2. Speedy Airport Service

When people go abroad by air, they go to the airport at least 2-3 hours in advance. Travel agents and carriers also recommend such practice. As there may be unexpected difficulties during the exit processing, there is a need to go to the airport with plenty of extra time.

The time one takes to go through the entry and exit process at Incheon International Airport is about 19 min. for exiting and 14 min. for entering the country. This is by far quicker than the 60 min. (exit) and 45 min. (entry) standards recommended by ICAO, the International Civil Aviation Organization. Therefore, the speedy entry and exit process makes Incheon International Airport, the world's best airport. A review of annual duration for entry and exit shows that exit time was reduced from 29 min. 23 sec. in 2005 to 18 min. 48 sec. (11 min. shorter) in 2009. For entry time, it was shortened by six minutes from 20 min. 30 sec. to 14 min. 29 sec. The entry and exit time is also the index of the airport's degree of advancement, as this is where the passengers most directly experience the airport's service quality and this principle applies to any airport in the world. Likewise, speedy processing is the most important competitive edge in airport service.

Incheon International Airport's success is based on its faithful adherence to airports' most basic and fundamental functions. Airport service means helping passengers enter and exit in the most speedy fashion.

By adhering to such principles, passenger entry and exit service was expedited. This naturally led to increased airport profit as passengers who quickly completed entry and exit spent more time at the commercial facilities.

As a result, Incheon International Airport became the fastest entry · exit airport in the world, as well as the airport with the greatest duty free sales per capita. Now, Incheon prides itself in quality service as well as profit.

43. Smartsourcing: A compound of smart and outsourcing, it means a new form of outsourcing. That is, to seek partners that can qualitatively collaborate and go beyond traditional outsourcing in order to save the primary cost.

Focusing on details instead of conspicuous services played a crucial role in improving the overall service of the airport.

3.3. Diversification of Service Products

Incheon International Airport won the first prize in the Northeast Aviation Marketing Sector from the Root Development Group (a professional aviation route consulting company) in 2009. This award is given to airports with great performance and innovative practices in air marketing, for each continent. Incheon International Airport was acknowledged for its relationship formation with operating carriers, attracting new carriers, discovering new routes and creating new demands within the region, providing incentives such as discounted service charge, installing various transit amenities, transit tour operations and various creative and pioneering activities in the overall air marketing sector. Incheon was also acknowledged for newly attracting Fin Air, the biggest carrier in Northern Europe, as well as Aircalin, which connects Oceania and Europe, therefore opening the new transit route "Kangaroo line." This accomplishment reflects international acknowledgement of Incheon's airport operation and air marketing, in addition to its service quality.

In addition to airport operation know-how and construction know-how, Incheon Airport is also exporting customer service. Incheon International Airport is now discussing CS consulting contracts with China's Guangzhou Báiyún Airport. Service export has greater meaning than any other airport know-how as the airport's customer service is being acknowledged as a brand itself. Incheon International Airports Corporation is planning to accomplish its aim to establish the Northeast Asia's hub network by connecting Russia, CIS, and China's base airports. Entry into the Chinese market is especially significant as China's market has infinite potential in the aviation market. There are over 100 airports in China and more may be built in the future. By commercializing and selling airport management operation know-how, this may become a main export item for Korea as in the case of cars, TVs, and cell phones.

Incheon International Airport could go beyond the conventional concept of airports by taking a different approach. The idea was that airports are not mere spaces for boarding and disembarking airplanes, but are service products in themselves.

Therefore, instead of passively waiting for customers, Incheon is selling airport service and operation know-how and actively attracting customers from all over the world.

Incheon International Airport is rising as a representative service product like cars, TVs, and cell phones, and is establishing the standard for global airport service.

Incheon is also transforming into a cultural space by providing unique experiences and going beyond the conventional concept of providing safe and speedy entry and exit service.

3.4. Differentiated Marketing

In 2007, the Incheon International Airport Culture and Art Advisory Committee (comprising experts in the culture and arts sectors such as cultural criticism, performance, art, sculpture, architecture, and exhibition) was established. It began to study unique culture and arts contents that can be exclusively experienced at Incheon International Airport. Incheon International Airport's culture and arts contents consist of experience, performance and exhibition (3 sectors). Experience aims to publicize the traditional Korean culture to foreigners. To this end, the airport is collaborating with Korea Cultural Heritage Foundation, offering crafts classes for fans, traditional Korean paper and knots, and musical performances playing the danso (musical instrument). The performance service is to entertain the customers while they spend time at the airport. Exhibitions play key roles in publicizing the excellence of Korean art. In particular, focus lies on the royal palace culture, Korean alphabet and traditional art, including programs such as the Korean culture museum for promoting Korea's history, Korea's traditional craft exhibition where viewers can see ceramics and traditional attire, media art by the world renowned artist Paik Nam-jun, and street exhibits at entry ports where viewers see photos, wooden furniture and traditional earthenware are creating new value by publicizing Korea's status. Incheon International Airport also won the 10th Mecenat Creative Award in 2009 for its activity in the culture and arts field being globally acknowledged. Incheon International Airport, as the gateway to the world, is now officially recognized for its living, active culture, and arts.

The 21st century is the age of culture and affect. Products require packaging in culture and sentiment. Accordingly, programs provide Korea's traditional aroma to airport users and open opportunities to enjoy culture products to local residents. With the company and culture coexisting, these activities could be seen as social contributions in a new form rather than just a marketed culture. Culture differentiation will become a marketing strategy that is more powerful and effective.

3.5. Excellent Workforce

Incheon International Airport's personnel system is more innovative than that of any other private enterprise. Most notably, the CEO consigns the personnel authority to the employees, which is traditionally the CEO's unique right. Therefore, the typical 'personnel appointment' from the company does not appear. Instead, the employees apply to teams they wish to work in and select people who they want to work with. This is the unique "Employee Bidding System" that Incheon International Airport operates.

Incheon International Airports Corporation's outstanding airport operation capacity is supported by a firm belief that people are at the center of the company's progress:

namely, human-focused management. According to the corporation, this human-focused management strategy is the key to outperform successful overseas airports.

Incheon International Airport is trying to foster creative workforce with global competitiveness. Such efforts go into promoting a lively corporate culture and sublimating individual capacity and will into creative and productive energy.

Also, the corporation is positioning itself as the most transparent and ethical enterprise that guarantees absolute reliability to all interested parties in the overall airport management by emphasizing honesty and ethical conduct to its members.[44]

3.6. Construction and Operation

The development of the project management system for Incheon International Airport's Construction Project benchmarked the Nuclear Power Plant Construction Project Management System and the Domestic Construction Project Management (PM) System. It also referred to experiences in building overseas airports by inviting foreign experts that had experience in building super-scale airports abroad. Moreover, it outsourced technical and empirical areas that were deemed insufficient. The decision to refer to domestic projects was based on the view that development should be centered on the domestic system, considering related laws, characteristics of the system and the cultural traits of the society and organization. This project became a turning point towards successful development and operation of construction project management systems. Last but not least, the aim was to build a safe, "beautiful and outstanding" airport.[45]

44. KMAC, Somehow Different Incheon Airport, What is Different?, 2010, cited.

45. "Dong Suk Kang" interview.

2012 Modularization of Korea's Development Experience
Airport Policy and Infrastructure Development

Chapter 6

Case Studies on Local Airports

1. Factors in the Decrease of Demand for Domestic Air Transport
2. Local Airports' Closure of Deficit Routes

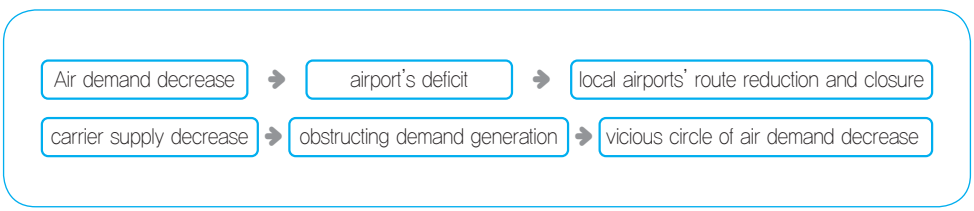
Case Studies on Local Airports

1. Factors in the Decrease of Demand for Domestic Air Transport

Domestic air passengers continued to increase since the 1990s, but considerably decreased in 1997 due to the foreign currency crisis. It is showing a gradually recovery since; now, the overall air transport is increasing, but the overall domestic transport is decreasing due to complex factors such as high-speed railway and expressway operations, as well as global and domestic recessions. For such reasons, it is showing slower recovery compared to int'l services.

As shown in [Figure 6-1], decrease in air demand results in carriers' deficit, leading up to route reduction and closing of local airports. Such decrease in supply from airlines obstructs generating supply and again, leads to decrease in air demand creating a vicious circle.[46]

Figure 6-1 | A Vicious Circle for Decline in Air Transport Demand



Source : Ministry of Land, Transport and Maritime Affairs, the 3rd Mid-Long Term Comprehensive Airport System Plan

46. Ministry of Land, Transport and Maritime Affairs, 3rd Mid to Long-term Comprehensive Airport Development Plan establishment, 2006.

Internally, local airports' decrease in demand is caused by the intricate network of expressways and KTX high-speed railways. Externally, global and domestic recession is affecting the decrease in air demand. Consequently, domestic carriers reduced routes or closed deficit routes to compensate for deficit, leading to the closure of certain local airports.

In terms of the carrier, deficit due to service from local airports has a negative impact on the company's performance. Yet, this is an exception for surplus airports such as Gimpo, Jeju, or Gimhae. The decrease in carrier supply due to air demand decrease is a problem as it leads to decrease in airports' profit, aggravating local airports' balance on current account.

Currently, all local airports other than Gimpo, Jeju, Gwangju, Gimhae Airports are suffering billions of deficits each year.

The main causes for the local airport's decrease in demand are shown as below.

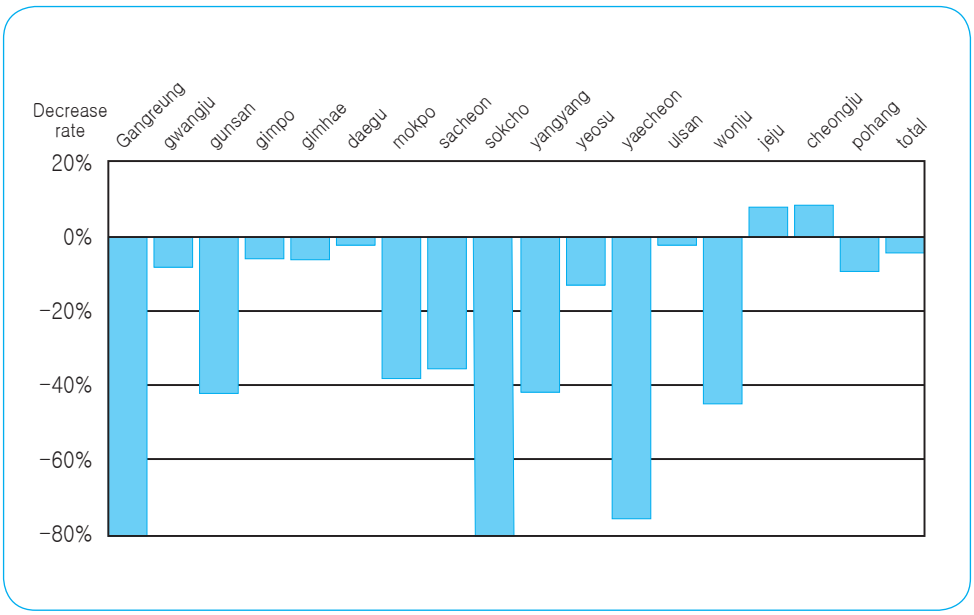
1.1. Air Transport Demand Change due to the Initiation and Expansion of Expressway Operation

Compared to other modes of transport, the aviation sector has less competitive edge in terms of accessibility and fee. Furthermore, the construction and operation of expressways are reducing the demand in domestic air, connecting Seoul and local airports.

Gunsan and Mokpo Airports suffered passenger decrease of 41% and 37% each due to the West Coast Expressway; Sacheon Airport 34% due to the Daejeon~Jinju Expressway; and Yecheon Airport about 75% due to the Central Expressway. This resulted in airport closure.

Wonju Airport and Yangyang Int'l Airport are also suffering as they are showing a decrease of 44% and 41% each due to the construction of the Central Expressway No. 2 and expansion of the Yongdong Expressway.

Figure 6-2 | Passenger Decrease Rate before and after High-speed Railway Operation by Airport



Source: Ministry of Land, Transport and Maritime Affairs, the 3rd Mid to Long-term Comprehensive Airport System Development Plan establishment study, 2005

1.2. Radical Change in Air Demand due to High-speed Railway

The opening of phase 1 Seoul-Busan High-speed Railway on Apr. 1, 2004 significantly decreased air demand in Daegu, Busan, Pohang, Ulsan, and Sacheon Airports, which are along the Busan-Seoul line. Phase 2 Mid to Long-term Basic Airport Development Plan foresees the air demand decrease rate of year 2004 as of 20% in Seoul~Busan, 65% in Seoul~Daegu, 13% in Seoul~Pohang, 13% in Seoul~Ulsan, and 5% in Seoul~Jinju. Similar overseas cases show that the decrease in demand, although there are differences, ranges around 10%~90% depending on the regional environment.

Changes in air demand, before and after the Busan-Seoul High-speed Railway shows a decrease of about 70% in Daegu, 37% in Gimhae, and 29% in Gwangju. What is more, demands at Gunsan, Gwangju, and Mokpo Airports are decreasing because of the electrification of the Honam Railway.

Air transportation has less competitive edge than high-speed railway in terms of fee and duration. This is also a major factor that decreases air demand.

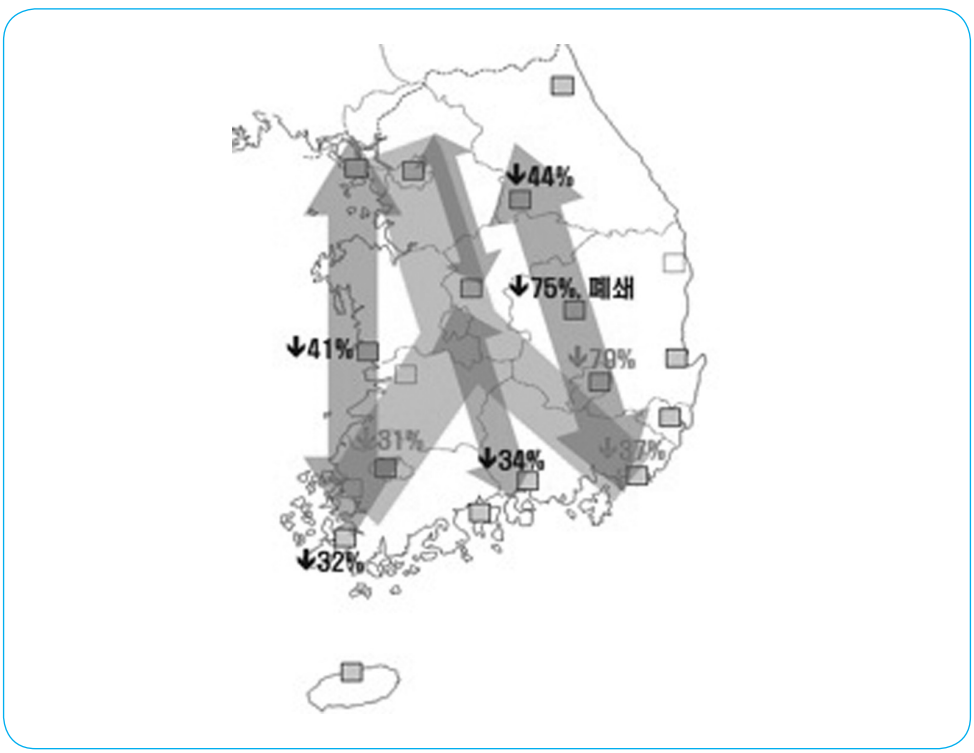
Table 6-1 | Changes in Air Demand due to the Initiation of High-speed Railway Operation

Classification		Gimpo~Daegu	Gimpo~Gimhae	Gimpo~Gwangju	Gimpo~Mokpo
No. of Passengers (persons/year)	Before opening (Apr. 1 2003~Mar. 31 2004)	1,401,319	5,176,949	1,177,082	69,538
No. of Passengers (persons/year)	After opening (Apr. 1 2004~Mar. 31 2005)	298,017	3,274,995	847,511	26,916
Increase/Decrease Rate compared to Previous Year(%)		△79	△37	△28	△61

Note: Decrease of passengers can be due to factors other than the opening of the Seoul-Busan High-speed Rail

Source: Ministry of Land, Transport and Maritime Affairs, the 3rd Mid to Long-term Comprehensive Airport System Development Plan establishment study, 2005

Figure 6-3 | Changes in Airport Demand due to High-speed Railway Operation



Source : Ministry of Land, Transport and Maritime Affairs, the 3rd Mid to Long-term Comprehensive Airport System Development Plan establishment study, 2005

1.3. Decrease in Air Demand due to Domestic and Overseas Recession

Korea's air demand rapidly increased in the '90s due to economic growth and deregulation of traveling abroad,[47] but radically decreased after the 1997 foreign currency crisis due to the domestic recession. The economy recovered after 2000, but several factors such as skyrocketing oil price (after 2000), the 9/11 in the U.S. (2001), the SARS scare (2003), and the Iraq War constricted the domestic aviation industry. Furthermore, due to the int'l oil price inflation, demand in domestic air gradually decreased, whereas the demand in int'l air slightly increased. Overall, with future economic prospects remaining uncertain, domestic air demand may suffer stagnation or show a slight increase.

1.4. Conversion to Civil/Military Shared Airport and Construction based on Political Consideration

More than half of Korea's airports are converted from military airports, and are now shared by the civil sector and the military (8 airports). There are only 7 airports (Incheon, Gimpo, Jeju, Yeosu, Yangyang, Muan, and Ulsan) that are exclusively used for civil service. Civil airports, to accommodate high-speed and large aircrafts, apply int'l standards set by ICAO. On the other hand, military airports are built at special locations with obstacles around. This is because of military purposes, to maximize the capability, during wartime. It also complies with the U.S. Federal Aviation Administration (FAA) standards. These airports that were originally set up for military purposes were converted for civil service, which caused considerable limitation on their expansion and operation.

In certain cases, misguided policies and political logics for balanced national growth (to even serve isolated areas) lead to airport construction.

However, policies should contribute to national welfare by promoting rational and realistic judgments from the central government, local governments, and policy makers. If airport construction projects are not conducted properly, tax will be wasted and this will cause serious problems within the society.[48]

2. Local Airports' Closure of Deficit Routes

The failures of local airports are due to both internal and external reasons: internally, due to networked expressways and the high-speed rail and externally, due to the global

47. Deregulation of traveling abroad was announced in 1989.

48. Korea Transport Institute, Opening future society through transportation policies , 2012, p.11.

and domestic recession. This naturally led to decrease in air demand. Therefore, in order to cut their losses short, domestic carriers and deficit lines were closed down, resulting in the closure of certain local airports.

In terms of carrier, excluding surplus airports such as Gimpo, Jeju, or Gimhae, deficit due to service from local airports has a negative impact on the company's performance. The problem is that such decrease in carrier supply, caused by decrease in air demand, leads to decrease in airports' profit and eventually aggravates local airports' finance.

Other than Gimpo, Jeju, Gwangju, and Gimhae Airports, local airports are currently suffering huge deficits each year.[49]

The cases below are examples of such failures.

2.1. Uljin Airport

Uljin Airport, an air field located at Bongsangri Giseongmyeon Uljingun Gyeongbuk, with 84% of the construction complete with a 131.5 billion won of investment, suspended its construction due to the Board of Audit and Inspection's project revision demand in 2004. Later in 2010, the site reopened as an aviation training center.

The purpose of the airport was revised because of the shut sown of Yecheon Airport. The fact that Pohang Airport is accessible within only 1 hour by Highway No. 7 is another reason.

Expecting an annual passenger demand of 0.5 million, Uljin Airport began its construction in 1999. However, due to the lack of demand, its opening was postponed from 2003 to 2005. With additional investment in 2010, the airport was converted to an aviation training center without even servicing a single route. This is because of the misguided demand forecast (that demand will arise from tourism), and the intervention of political intentions in terms of balanced national development, claiming to serve the most isolated area in the transportation network.

2.2. Muan Airport

Jeonnam Muan Airport also postponed its opening from 2005 several times. Although it was expected to follow the case of Uljin Airport, it opened in Nov. 2007 with int'l services only. Muan Airport's objective was to serve as the new airport of the Southwest zone by replacing the domestic service function of the old Gwangju Airport and adding int'l service. However, due to the lack of commercial feasibility, demand is consistently decreasing.

49. Ministry of Land, Transport and Maritime Affairs, the 3rd Mid to Long-term Comprehensive Airport System Development Plan establishment, 2006.

Muan Airport was to replace Mokpo and Gwangju Airports in the Southwest zone, supplementing domestic trunk routes and int'l services. However, by leaving the domestic services at Gwangju Airport and only taking over Gwangju's int'l service and Mokpo Airport's functions, the performance of both Gwangju and Muan (opened in 2007) Airports are low because of the divided air demand. As a result, its original purpose to serve as the base airport of the Southwest region is not fulfilled. Furthermore, competitors - high-speed railways and expressways - were overlooked; the West Coast Expressway (opened in 1991) and the Honam High-speed Railway Osong-Gwangju (2014) and the Gwangju-Mokpo section (completed in 2017) are more likely to take over ground transportation.

2.3. Yangyang Airport

Yangyang, an int'l airport located at Yangyang Gun in Gangwondo, is the 4th largest airport following Incheon, Gimpo, and Gimhae Airports. "In 1986, the new int'l airport was planned to improve transportation service and promote tourism in the Yongdong region. Construction began in Jan. 1997 with an investment of 356.7 billion won, and the airport was planned to open in 2000 as an int'l airport with an annual capacity of 3.17 million passengers. However, due to the impact of the foreign currency crisis, its opening was delayed to Apr.3, 2002."[50] The airport was to be positioned as the new airport in the Yongdong region by absorbing the demands of the existing Sokcho and Gangreung Airports. But from the first year, it didn't turn out as expected. Due to road improvement projects such as the Yongdong Expressway 4-lane expansion, the Mishiryeung Tunnel, and Highway no. 44 expansion, the local air demand sharply decreased. As a result, the deficit accumulated over the past 9 years reached 74 billion won.[51] In Jun. 9, 2008, Korean Air's Yangyang~Busan route closed down and the airport lost its function. Korea Express Air in 2009, East Asian Airline in 2011 and Buheung Air in Mar. 2012 started their operations, but soon discontinued due to deficits. As of May 2012, Korea Express Air (an Air Taxi carrier) runs services to Gwangju, Gimhae, and Gimpo Airports.

Yangyang Airport opened in 2002 to replace Sokcho and Gangreung Airports. However, it suffered suspension of the Yangyang-Gimpo domestic line and regular int'l lines because of low accessibility to the airport within the Yongdong region and the lack of tourist resources in Gangwondo. Now, only domestic lines (Yangyang~Gimpo, Yangyang~Gwangju) and non-regular int'l lines are in operation. The cause of this failure can be traced to airport policies that disregarded user convenience and negligence of expressway and highway

50. Busan University, Korea's Airport Policies and New Airport Development Cases, Chung Hun-young 2009.

51. Korea Economy Magazine issue 801, Construction of 'off-course' local airports, Chang Seung-gyu, 2011.

plans (which are competitors). Demands have converted over to ground transportation by the expansion of the Yongdong Expressway (2001) and the opening of the East-west Expressway (to be completed in 2015).

Table 6-2 | Yangyang International Airport User Status

Classification	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Movements	3,128	2,629	1,523	737	1,059	932	155	Operation Suspended	134	72
Passengers	217,115	194,539	114,342	60,690	51,547	35,300	9,312	Operation Suspended	8,930	5,749
Status (compared to previous year)		↓ 22,576	↓ 80,197	↓ 53,652	↓ 16,247	↓ 9,147	↓ 25,988	Operation Suspended	↑ 8,930	↓ 3,181

Source: Korea Airports Corporation, Aviation Usage Statistics, http://www.airport.co.kr

2.4. Cheongju Airport

Cheongju Airport was degraded to a "mini local airport," as most of the international routes and the Busan route were closed down due to low boarding rates (7~8%) and the foreign currency crisis following its opening. Accessibility improved as the province of Chungcheongbook and Korea Airports Corporation increased the routes and the new Cheongju Airport Station was added to the Chungbuk Line on Sep. 1, 2000. In Sep. the same year, Cheongju Airport was designated as a gateway airport and exit · entry procedures and fees were removed, contributing to the vitalizations of the airport. On Feb. 1, 2012, for the first time among all airports in the country, Korea Airports Corporation sold management rights to a private company called Cheongju Airport Management Co. Ltd. This company was to be in charge of airport operation for the following 30 years, while the government was to continue managing airport facilities. However on Jan. 16, 2013, as the Korea Airports Corporation canceled its contract for the "Cheongju Airport Management Rights Sales Plan" on Jan. 16, 2013, this plan was nullified.[52] Cheongju Airport has been devising various vitalization plans at the local as well as corporation level, but deficit is continuously increasing due to declining boarding rates.

52. Wikipedia.org.

2012 Modularization of Korea's Development Experience
Airport Policy and Infrastructure Development

Chapter 7

Suggestions and Directions for Airport Policies

Suggestions and Directions for Airport Policies

The objective of this study is to systematically present cases of airport development and policy making, which is a topic of high interest for int'l organizations such as the Multilateral Development Bank and developing countries.

In the case of domestic airports, Gimpo Airport was run as the int'l and domestic base airport and as the gateway to Korea due to explosive increase of air demand later in the 1990s. With the '88 Olympics, air demand in the metropolitan area further increased, raising the need for airport transfer. Incheon Airport in the metropolitan area, Yangyang Airport in the Yeongdong area, and Muan Airport in the Honam area opened in the above order. The existing Sokcho and Gangreung Airports were incorporated under Yangyang Airport, and Mokpo Airport to Muan Airport. However, Yecheon Airport was closed due to decreased demand and Uljin Air Field was originally built as an airport but was changed into Uljin Aviation Training Center; now, fifteen airports (civil and military) are in operation. Among them, Incheon Airport is managed by Incheon International Airports Corporation and the rest by Korea Airports Corporation.

The government led construction and operation of airports as part of the national transport infrastructure. Therefore, efficiency of local airport operation and financial support turned out to be insufficient. Furthermore, without a national level plan, airports expanded in order to accommodate increasing passengers, and there was a need for a long-term airport development plan to protect the environment and resident rights in the airport vicinities. Accordingly, the Ministry of Land, Transport and Maritime Affairs established and announced the Basic Airport Development Plan to ensure effective airport development projects. This plan is an official plan renewed every five years to systematically enforce each airport's development projects, to reflect socio-historical changes in a timely manner, and to establish an efficient airport system. Before 2000,

airport development policies either didn't exist or lacked systematic structure. Hence, a comprehensive plan is crucial for policy making and its execution, as it will provide future oriented directions. Furthermore, efficient budget execution and policy enforcement became possible by establishing mid to long-term comprehensive plans and yearly detailed execution plans.

The government-led construction and operation of airports and constructions (new and expansion) tend to be led by the Ministry of Land, Transport and Maritime Affairs except for Incheon Airport. Airport operators include the Incheon International Airports Corporation (IIAC) that is in charge of Incheon International Airport; and Korea Airports Corporation (KAC) that is in charge of Gimpo, Yangyang, Muan, Ulsan, Yeosu, Gimhae, Daegu, Gwangju, Cheongju, Sacheon, Wonju, Gunsan, Pohang, and Jeju Airports.

Currently, aviation related laws are divided between the Ministry of Land, Transport and Maritime Affairs and the Ministry of Knowledge Economy. The Ministry of Land, Transport and Maritime Affairs, in charge of transport industries and transportation safety, governs the Aviation Law, Aviation Safety and Security Law, Air Transport Business Promotion Law, Korea Airports Corporation Law, Incheon International Airports Corporation Law, Metropolitan Area New Airport Construction Promotion Law, Airport Noise Prevention and Noise Countermeasure Area Support Law, Air and Railway Accident Investigation Law (total of eight), and lower level laws, whereas the Ministry of Knowledge Economy, in charge of industry growth and promotion, legislates and governs the Aerospace Industry Development Promotion Law.

Funding entities include the government, airport corporations, local governments, and private works, depending on the airport. Incheon International Airport is a representative case of attracting private investment for airport facilities. The government still funds most of the cost, which is a heavy burden. Therefore, there's a need to consider national subsidy, tax, loan, and self-procured loan for alternative measures, and each entity including local government bodies should take on partial shares.

The domestic aviation policy became detailed and comprehensive through the amendment of the Aviation Law in 2008. Until then, the Basic Aviation Policy Plan was established through the Mid to Long-term Comprehensive Airport Development Plan. Key contents include proposing prospects and changes in future conditions for aviation, proposing an aviation vision and execution strategy, and preparing detailed enforcement plans for the aviation sector. Future directions for airport policy include preparing fair competition systems for transporting companies, vitalizing low cost carriers and general airlines, inducing airport development through local government operation consignment in building new airports and air fields, and vitalizing local airports.

Incheon International Airport, a success case of domestic airport development, was designed to alleviate Gimpo's capacity saturation. Construction began on Nov. 12, 1992, and the airport opened on Mar. 29, 2001, after eight years and four months. Currently, Incheon Airport has a high global status, ranked as world no. 1 for seven consecutive years (2005~2011), a feat no airport out of 1,700 in the world had ever achieved. In the ASQ (Airport Service Quality) assessment, conducted by the int'l airport conference's ACI (Airport Council International), the airport also won the "special award" as the int'l airport conference acknowledged Incheon's contribution in elevating its service quality as the role model for global airports. This was an award specially established for Incheon International Airport. Based on its brand power, Incheon International Airport exported software and technology to airports in Iraq, Russia, the Philippines, Nepal, Cambodia, and Indonesia. Through this, the airport is enhancing the value of "Incheon Airport in the World" in the overseas business sector, which was traditionally dominated by advanced countries. Phase 3 construction project is in execution in response to future air demands, and Incheon International Airport also proved its excellence with 80 thousand hours of non-stop operation and no accident record in the airport operation sector. The following projects must be executed to further continue its development.

In contrast to Incheon Airport's success case, local airports suffered decrease in air demand due to the global and domestic recession and the impact of high-speed railway and expressways. Domestic carriers closed down deficit routes and reduced less profitable lines, resulting in the closure of certain local airports. This means that there's a need to vitalize local deficit airports where facility usage falls short. Vitalization methods include the following: providing popular air transport service to small scale inland air demand routes, differentiating airport operation according to the airport system, creating air demand by vitalizing small aircraft transport business, devising measures to vitalize airports based on local characteristics, providing customer benefit by improving airport service, and devising measures to improve airport operation efficiency.

In establishing airport policies in developing countries, which is a powerful sector, the government should consider various factors in each stage. First, there is a need to define the target of the plan. That is, the factors to consider in each stage depends on the target (passenger, cargo, int'l or domestic passenger, etc.), and development plans should be selected accordingly.

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Ministry of Strategy and Finance, Republic of Korea

339-012, Sejong Government Complex, 477, Galmae-ro, Sejong Special Self-Governing City, Korea Tel. 82-44-215-2114 www.mosf.go.kr

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