New decade

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For decades, the government of South Korea has exerted its best effort to expand social infrastructures as the primary means of strengthening economic efficiency. Infrastructure facilities, however, became insufficient to keep up with the faster growth of economic scale. The government needed to find an alternative way to provide infrastructure facilities since it had trouble financing them within budget constraints.

The concepts of public-private-partnership (PPP) and private finance initiative (PFI) have significantly developed throughout the world since the 1990's. South Korea had set a successful example of practicing such concepts: the government decided to alleviate the state financial burden by promoting private sector investment in order to encourage expansion and operation of infrastructure.

The private investment system in South Korea was first introduced in August 1994 with the enactment of the 'Promotion of Private Capital into Infrastructure Investment Act.' It launched a new methodology to provide infrastructure with private investment and established the PPI (Private Participation in Infrastructure) system. The first PPI-implemented project was Incheon International Airport Highway, financed in 1995. The Korea Development Bank (KDB) was financial advisor and mandated lead arranger. Since then, the transportation sector has spawned the majority of South Korean PPIs.

Incheon International Airport Expressway (1995)

The Incheon International Airport Expressway provides an important transportation link between Seoul metropolitan area and Incheon International Airport, which is the north eastern Asia's major hub airport. The concession awarder is the Korean Ministry of Construction and Transportation, and the concessionaire (concession period 30 years after completion) is Incheon International Airport Highway Co, Ltd.

Incheon International Airport Expressway is the only bridge connecting the airport (on Yeongjong Island) with the mainland. It is 40.2km in length, including the Yeongjong Grand Bridge, which is the world's longest self-anchored suspension bridge.

Expressway project equity of KRW434 billion ($400 million) occupies 30% of private investment cost while debt takes 70%. Government subsidy amounts to KRW358 billion ($300 million). The Korea Development Bank arranged total debt of KRW1,031 billion ($1.3 billion), introducing project financing to South Korea and the first example of PPI financing.

In 1998, as the first drawdown of the debt began, Asia's financial crisis was hitting hard. Two of the project sponsors went bankrupt, and some of the lenders found they could not afford to drawdown the commitment amount. Since the Expressway is the only approaching way to the airport, which was to be opened in 2000, financing failure would have caused serious damage to South Korea's economy.

The Korea Development Bank as mandated lead arranger and agent bank had draught KRW95 billion more than the commitment amount for the lenders. Also, in 2000, The Korea Development Bank arranged a bridge loan of KRW 25 billion for the borrower due to a delay in opening the airport.

Reformation in PPI system

Though Incheon International Airport Expressway was financed successfully, the initial PPI system was a limited success – mainly due to insufficient government support, complicated implementation procedures and noncompliance with global standards. From 1995 to 1998, only five projects were financed.

To make matters worse, the Asian financial crisis in 1997 affected the economic and financial environment of South Korea – sponsors cancelled projects, put new investment off and financial investors were reluctant to invest in PPI projects. Thus, government had no choice but to alter the PPI system and regulations drastically, since it needed to attract more private investments. The Act on Private Participation in Infrastructure came into force in December 1998 and a variety of government support was added and implementation procedures were simplified to meet global standards. After this tremendous reformation, PPI boomed and took its place as an important investment measure of institutional investors. While the ratio of private investment to total infrastructure investment was 3.8% in 1998, it grew to 6.1% in 2003 and 8.9% tentatively in 2004, according to the Ministry of Planning and Budget.

After the reformation of the PPI system, Daegu-Busan Expressway was financed by the Korea Development Bank. The Korea Development bank had succeeded to bring foreign investors into Korea's Infrastructure facility for the first time. It was possible with the reformed version of PPI system since it had met the global standards.

Daegu-Busan Expressway (2000)

The Daegu-Busan Expressway is to run from an intersection with the Kyungbu Expressway at Dong-Daegu, east of Daegu city, to Daedong at Kimhae city, north-west of the Busan City. The expressway consists of an 82.05km long, dual 2-lane road, and incorporates 7 intermediate intersections (plus links with existing roads at either end). Structural requirements of the route include 105 bridges and 13 tunnels.

The project is to develop, construct, commission and operate the Daegu-Busan Expressway in accordance with the concession agreement between the concessionaire (Daegu Busan Expressway Co, Ltd) and the government (the Ministry of Construction and Transportation) under the Private Participation in Infrastructure scheme (PPI).

The project was completed on a Build Transfer Operate (BTO) basis. Ownership of the expressway was transferred to the government after the 5-year construction period (Jan, 2006), following which there will be a 30-year operating concession for the concessionaire.

The principal rationale behind the project is to provide a direct route connection between Daegu Metropolitan city and Busan Metropolitan city, which represent the 4th and 2nd largest cities in South Korea. The proposed route of the expressway is shorter than the options of using the Kyungbu or Guma/Namhae Expressways, which pass Kyongju and Masan respectively between Deagu and Busan. National Route 25 provided a direct route between Daegu and Busan, but was far from expressway standard.

In providing a shorter route, freight traffic is able to make a faster, and thus cheaper, journey to the port at Pusan from the hinterland of Korea. It is a particular aim to improve the journeys of important long-distance movements from the Seoul-Busan corridor. Busan Port is the largest and most important port in South Korea; and ranks as one of the busiest container ports in the world.

Total investment cost of KRW2,521 billion ($2.5 billion) was funded from equity, debt and government subsidy. Project equity of KRW714 billion ($700 million) occupies 40% of private investment cost as debt takes 60%. Government subsidy amounts to KRW705 billion ($700 million). The Korea Development Bank arranged total debt of KRW1,101 billion ($1.1 billion), including Social Overhead Capital Bond and offshore lenders.

Table 1 : Total Project Cost in DBE

Classification	Amount	Classification	Amount
Total Project Cost	19,630	Sponsors' Equity	7,141 (28.32%)
Interest Incurred during construction	1,760	Debt	11,015 (43.69%)

Price Fluctuation Cost	3,825	Government subsidy	7,058 (27.99%)
Total Investment Cost	**25,214**		

Source: KDB

The project has a stable structure including a guarantee of 90% of the estimated toll revenue by the government and strong provision of termination payment to cover total senior debt under the concession agreement. In addition, shareholder support and a KDB Credit Line were provided.

Incheon International Airport Railroad (2004)

2004 was a memorable year in the history of the Korean PPI system. According to data from the Korea Development Bank, the accumulated financing amount until 2004 is approximately KRW17 trillion. This is tremendous growth, considering that the financing amount in the 1990's is KRW2 trillion.

This result is mainly due to the Incheon International Airport Railroad (IIAR) project, the biggest PPI project as well as the first railroad PPI project in South Korea. Most of the financial institutions in the PPI market including banks, insurance companies, pensions, and funds participated in this particular project of which financing is up to KRW3.31 trillion.

In order to provide the additional transportation services other than the newly opened highway between Seoul metropolitan area and Incheon International Airport which is the north eastern Asia's major hub airport, Incheon International Airport Railroad project was implemented as a private capital investment project. The competent authority is Korean Ministry of Construction and Transportation while concessionaire with concession period of 30 years after the completion is Incheon International Airport Railroad co, ltd (AREX). The concession agreement for IIAR project concluded in 2001 and the implementation plan was approved at the end of 2003.

IIAR project whose total required cost is approximately KRW4,400 billion ($4 billion) will connect the Incheon International Airport located on Youngjong Island at the western sea of Korean peninsula and the Seoul Metropolitan area. Its total route length will be 61.0km of electrified double track, 10 stations and 1 depot will be included.

Total investment cost is to be funded from equity, debt, government subsidy and operating revenue. Project equity of KRW1,151 billion ($1.1 billion) including DSRA (debt service reserve account) occupies 33.6% of private investment cost while debt is the remaining 66.4%. The KRW3,310 billion ($3 billion) debt consists of five tranches: government subsidy amounts to KRW846 billion ($800 million) which takes 21.4% of total investment cost, KRW3,946 billion ($3.6 billion). KDB arranged total debt of KRW3,310 billion ($3 billion) on a commitment base, including bond facility and stand-by facility. DSRA is arranged for stable repayment of principle and interest.

Financing Plan

Uses of funds	(KRW billion)
Construction cost	2,413
Non-construction cost	736
Construction contingency	439
Interest during construction	360
Debt service reserve account	80
Operation cost	387
Total uses	**4,415**

Funding from syndication, with participation from 20 financial institutions, was completed in October 2004. IIAR became a milestone in PPI railroad projects and provoked more innovation in Korean project finance.

Tranportation in South Korea: Now and future

From 1995, it was a decade to remember for the PPI system in South Korea. The Korean PPI system had set a successful example from 1994 when initially established. The number of projects has been steadily increasing. The PPI portion within SOC investment has been on the rise. As more spending is expected to be allocated for other sectors such as social welfare, private investment for infrastructure development will increase.

Table 2: PPI Investment Trend

(Unit: trillion KRW)

	'00	'01	'02	'03	'04	'05	'06
Total SOC Investment*	16.2	16.6	17.2	19.6	19.1	20.9	21.6
– Public Investment	15.2	16.0	16.0	18.4	17.4	18.3	18.4
– PPI Investment	1.0	0.6	1.2	1.2	1.7	2.6	3.2

*includes transportation (road, railway, port, airport),
water resources and regional development investment

**actual drawdown amount base

Source : Ministry of Planning and Budget

The transportation sector played the main role in the Korean PPI system, taking a share of 53% in performance of BTO projects.

Table 3: Performance of BTO Projects by facility types

	Total	Road	Port	Railway	Other
Number of Projects	53	17	16	6	14
Total Investment	37.5	19.8	5.8	9.3	2.6
(trillion KRW)	(100%)	(53%)	(15%)	(25%)	(7%)

Source : Ministry of Planning and Budget (2006)

At first, most projects were focused on roads, tunnels, bridges and harbors. The source of fund was limited to loans from banks and the range of participants was also restricted; sponsors were mostly construction companies, and most deals were arranged by the Korea Development Bank. However, new types of financing sources such as bond, ABS, off-shore loans and subordinated loans are being adopted and insurance companies, pensions, mutual funds, and several investment banks are actively participating in equity shares and loans. Recently, the types of infrastructure proposed and implemented have been diversifying and the competitions in the market have been intensifying.

Projects managed by central government
(KRW37 trillion, 53 projects)

However, it seems that transport is still going to be the main sector in the Korean PPI system. Table 4 indicates road per country area at the year the countries listed achieved their $10,000 per GDP. South Korea shows 0.98 which is lower than any other OECD countries. Thus, it needs more roads or railroads to afford the burden of transportation within the country. Since Government is having trouble of financing infrastructure facilities with its own budget, it seems that PPI system will help tremendously catching up with country's needs of social overhead capital. As a matter of fact, in 2007, government announced three new transportation projects (Seoul-Munsan, Seoul-Pocheon, Changwon-Busan Expressway) and has chosen the preferred bidders for the projects. Also, three concession agreements for Pyungtaek-Sihung, Incheon-Kimpo, Anyang-Sungnam Expressway were signed on 18 July.

Table 4: Roads at $10,000 per GDP

Classification	Korea	Japan	France	Germany
Achievement year	2002	1984	1985	1979
Road per country area	0.96	2.98	1.46	1.35

(km/km_)				
Road per 1,000 people	2.0	9.37	14.55	6.15
(km/1,000 people)				

Source: Ministry of Construction and Transportation

One of the most distinctive features in South Korean PPI market, especially in transportation sector, is the increase of refinancing upon the emergence of new sources of capital for proven PPI projects; such as; Incheon International Highway (2003), Gwangju Second Ring Project (2003), Seoul Beltway Project (2004) and Chonan-Nonsan Expressway Project (2005). The sponsors' attempt to exit from the existing projects, to improve the financial terms including interest rates and the abundant capital market enabled the refinancing deals to be closed. With the ever increasing demand for refinancing, more transaction opportunities are expected in the next several years.

Facing a challenging lending environment, particularly given the recent margin drop, financial institutions actively take part in equity shares as financial investors. Moreover, reduction or removal of the MRG scheme by Korean government will require financial institutions to be more prudent on investing in PPI projects. The competitive PPI financing market has become more intense than ever and equity investments by financial institutions are expected to make a great leap. Insurance companies, pensions and funds, based on their degree of liquidity have also shown great interest in long-term asset investment and entered into PPI project finance market.

Greenfield projects coming up this year will have no MRG. The market is keeping an eye on these projects to see whether they can be financed successfully. The Korea Development Bank is going to finance the first transportation project without government MRG – the Incheon-Kimpo Expressway. "Financing the project will open up a new decade for transportation project finance market in South Korea," says Mr. Seil Kong, general manager of the Korea Development Bank.

"As the government eliminates the Minimum Revenue Guarantee for transportation projects, the efficacy of financial structures conveys absolute significance. Considering the current situation, that the market is growing in a fast manner, we might turn the possible threat to the biggest opportunity by providing the financing structures that best meet our clients' needs. I believe how we shape and diversify financing techniques will steer the way for the South Korean transportation market for next decade."