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(韓國의 事例)

Transportation Investments Through  
Private Sector Participation in Korea

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## **1.0 Introduction**

This paper reviews public and private sector partnership arrangements for providing infrastructure services in Korea. It begins with a general discussion of economic development in Korea (Section 2.0), and provides an overview of the current mix of public and private provision of infrastructure services (Section 3.0). In Section 4.0, partnership arrangements in the transportation sector in Korea are discussed. Based upon the Korean experience, several factors for successful partnership are highlighted in Section 5.0. The paper concludes with a summary of obstacles that may be faced by the private sector in the development of infrastructure.

The purpose of this paper is not to argue whether goods and services should be provided by private enterprise or by governments. All countries will continue to depend on a mix of services, and it is up to individual decision-makers to decide where to draw the line. However, the administrative capabilities of all governments are severely strained today by the weight of numerous activities. Given this situation, this paper examines whether national development could be accelerated by moving infrastructure responsibilities that could be handled in a more efficient manner to the private sector. Such an arrangement would allow those working with heavily burdened administrative systems to concentrate on activities that they are best equipped to provide.

## **2.0 Economic Development in Korea**

At the end of the Korean war in 1953, Korea was one of the poorest countries in the world. The Korean economy grew from a gross national product (GNP) per capita of US \$87 in 1962 to a GNP per capita of US \$6,498 in 1991. Economic growth since 1986 has been particularly dramatic. With economic growth averaging over 10% a year since then, Korea is one of the dragons in the Pacific-rim. Today, Korea is the world's tenth largest trading nation and boasts the thirteenth largest economy.

After the Seoul Olympic Games in 1988, economic development peaked in Korea, along with political liberalization and regional decentralization. The recent tide of democratization and social reform presents numerous challenges to public sector managers and administrators. Recent budgetary constraints on regional governments have forced newly established regional assemblies and the central government to seek alternative, cheaper ways to provide public goods and services.

Economic development has resulted in more demand for public goods and services. People have more disposable income and require more goods and better services. Demand for living conditions and the quality of life has increased rapidly. Thus, capital requirements for social overhead (e.g., welfare, health care, infrastructure, etc.) have increased as well. For example, Korean government initiated a health care system that is nation-wide. Economic growth has increased the expectations about the standards and universality of medical care in Korea. One hundred percent of the Korean population is covered by the National Health Security system which guarantees all Koreans minimum standards of health care and charges user fees that depend on a patient's ability to pay.

In sum, the economic system of Korea has its basis in private enterprise and a market economy. Since the democratic reforms, labour disputes and wage increase (from 1989 to 1991 real wage income has increased 1.5 times) are threatening Korea's international competitiveness as well as its domestic price stability. The inflation rate increased in 1991, reaching 11.17 percent.

### **3.0 Overview of Korean Infrastructure Services**

In Korea today, the mix of public and private sector provision of infrastructure services varies from region to region. In general, it is the public sector's responsibility to provide infrastructure services such as transportation, electricity, telecommunications, water supply, waste disposal, and education. Recent pressures for better and more infrastructure service, combined with decreasing resources have forced public sector managers to explore opportunities for working with the private sector to provide infrastructure services such as industrial parks, waste disposal, road construction and parking facilities.

In the current fiscal crunch, it is imperative for the public sector to identify alternative ways of financing major infrastructure. Some of the benefits of doing so include reduced capital costs from limited government budgets, lower operating and maintenance costs, and the capitalization of costs (which reduces costs from the government deficit). It also introduces private sector business expertise in infrastructure management. Accountability becomes clearer with formal partnership agreements. There are many examples of innovative partnerships for the provision of infrastructure development and financing.

In developing partnerships, there are two main challenges in protecting consumer, or stakeholder, interests. The first challenge is to maximize the positive impacts on stakeholder interests of new partnership arrangements, while minimizing negative associated costs. The second challenge is to ensure the public sector's mandate for

protecting public interests (such as legislation, regulation, management contract, etc.) is upheld. In general, private sector involvement in infrastructure is regulated in the following situations:

- when natural monopolies exist;
- when merit goods are involved;
- when substantial externalities exist and are not reflected by private suppliers; and,
- when pure public goods are involved, and it would be difficult to charge for a service or to exclude non-paying customers.

Economic decisions on choices between public and private provision of goods and services has conventionally been based on analysis of potential market failure. Depending on the nature of the market failure, governments step in to improve the situation. Possible solutions and tools for market failure situations include regulation, taxation, subsidies to the private sector, or provision by the government alone.

In some countries, public sector resource allocation decisions are constantly reviewed. Deregulation, privatization, liberalization, dynamics of competition, restructuring of industries are a few examples of changes that result from such reviews. Changes in economic, technical, social, and political considerations are rapid in Korea, adaptation to change is an essential part of the development of infrastructure. In the past decade or so, the general public has challenged the view that government is right all the time. Availability of information has not only shed light on how governments and markets operate, but has also challenged the conventional view of the appropriate role of private and public sectors. For example, the general public question of whether government agencies may be more responsible to political pressures than to consumer preferences. Regulation may protect the regulated industry or interest groups rather than the citizens.

In summary, the private market may be faulty but public sector intervention may be worse. Not only do markets fail at times but governments do also. Countries need to be innovative, rather than making choices between public or private sectors for provision of goods and services. The challenge today is to develop alternative institutional arrangements that best meet needs that arise and change over time.

### *New Town Development*

Since the mid-1960s, the Korean government has been a leading force in the creation of new industrial towns such as Chang Won, Kumi, Ulsan and Pohang. Government policy has been to develop certain industries to expand exports as an economic development strategy. The central government plays an active role in research and development (R&D). Much of Korea's R&D is performed by government operated or sponsored research institutes. For example, the central government planned and funded Daeduck Research and Development Town, was created during the 1970's in the Taejon area. There are numerous proposals to create a number of university-research-industry complexes for a technopolis (new technology parks) in the Suwon-Inchon-Seoul, Kwangju-Iri, and Pohang-Ulsan areas.<sup>1</sup>

With the dispersion of political power to the regional and local governments, the central government now shares economic development with regional and local governments. The development of an artificial island in Pusan serves as an example. Since the City of Pusan is surrounded by mountains of a green belt, growth is limited. Therefore the city created an agency to plan and develop an island in the harbour, which is to be connected to the mainland by bridges.<sup>2</sup> Current cost of land in the city makes the development idea very attractive to government and the private sector. There are about 20 major construction and real estate development companies expressing interest in this concept. As this seems like a profitable venture, other cities (Pohang, Kunsan, etc.) have opened planning competitions.

In order to finance the new town development, governments introduced taxes and levies. Fore example, in 1967 the central government initiated the Land Speculation Tax (50% of capital gains in major cities and areas specified by the Presidential Decree) payable by the vendor. Town Planning Tax and Public Facilities Tax were introduced by local governments to collect funds from land owners of the planned areas. In 1990 the central government introduced a law on Land Development Profit Recapture. The law included a development levy to the land developers, a land excess tax to the owners of the vacant

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<sup>1</sup> S. Park, "Government Management of Industrial Change in the Republic of Korea," in D.C. Rich and G. Linge eds. (on behalf of the International Geographical Union's Commission on Industrial Change) The State and the Spatial Management of Industrial Change, New York: Routledge, 1991, pp.74-87.

<sup>2</sup> Sehin Engineering Co., Ltd., A Comprehensive Plan for Pusan Artificial Island Development, City of Pusan, 1991.

land in the development project areas, and an undue profit tax to the income property owners charging more than the government regulated rents.<sup>3</sup>

### *Telecommunication*

The domestic market for telecommunications by the year 2001 is forecast to exceed US\$4.9 billion in value from US\$2.02 billion in 1990.<sup>4</sup> Mobile communications and network management are among major equipment and service areas which show promise for active participation by the private sector. The Korea Mobile Telecommunication Service Company was established as a subsidiary of the Korea Telecommunications Authority (KTA: a wholly government-owned corporation) in accordance with the basic Telecommunications Law and the KTA Law in 1984. Company stocks are held by KTA and private investors. Revenues, tripling in 1989, climbed another 170% in 1990 to a level of US\$87 million.

In 1991 the government decided to permit a new carrier for mobile telecommunications to help alleviate a growing shortage of lines for cellular phones. Joint ventures with foreign partners holding a minority equity share were to be considered provided that there was some provision for transferring needed technology. Several foreign firms actively pursued this opportunity with their Korean counterparts.

The telecommunication investment plan was aimed at providing complete mobile telephone service coverage of all cities countrywide while improving and centralizing quality control. As well, it focused on extending coverage of wireless paging services to villages nationwide, and forming an exclusive wireless paging switching network.

However, at the end of President Rho's term in office, the government of Korea awarded the mobile telecommunication development contract to a consortium led by Mr. Rho's in-law. After many debates and public inquires, the consortium returned the right and this project was postponed.

Two other mega projects, the Seoul-Pusan High Speed Rail Development and Yungjong International Airport, were postponed in 1992. Recently the new government has reinitiated both projects to enhance economic growth.

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<sup>3</sup> P.J. Park, Land Tax Law, Seoul: Kyungyung Munwhawon, 1993.

<sup>4</sup> Canadian Embassy, "Market Study on Telecommunications in Korea," Seoul: April 1991.

Until the mid 1960's the public sector was responsible for infrastructure. For major capital requirements, the government introduced a number of taxes and started to look to the private sector to provide infrastructure services. In some major infrastructure projects such as the Seoul-Pusan High Speed Rail Development and Yungjong International Airport, the government is seeking private developers/investors and foreign technology transfer as well as international financing arrangement.

#### **4.0 Infrastructure in the Transportation Sector**

The transportation sector in Korea provides several examples of private-public sector partnership arrangements for the provision of infrastructure. An overview of the country's recent experience in developing partnerships in this sector is provided below. Details are also given for arrangements made in the following areas:

- roads (including tunnels and bridges);
- parking facilities;
- urban transit systems;
- railroad stations; and,
- ports.

##### *Overview*

In 1960s the early days of private sector investment in the transportation sector, companies experienced financial difficulty. Problems arose because of heavy traffic congestion, low tariffs (rates were set by politicians), the high cost of labour, and increasing land values. Generally public authorities stepped in to take over the management of such facilities.

Today, under Korean law private sector companies can provide and manage transportation infrastructure and recover costs through a user pay concept (such as tolls). A number of construction companies have built highways, tunnels, bridges, and parking facilities since 1965. While some are losing money (tunnels and bridges) others are making profits (parking facilities).

Relevant aspects of the current legislation covering road construction in Korea is summarized in Exhibit 1.





The usual process followed for private sector involvement in the transportation sector is as follows:

- The government identifies particular projects for private sector development and financing based on equity, profitability, and public interest;
- The authorized agency of the government develops a plan for private development and financing and advertises the plan;
- Interested private developers and investors make proposals, and the agency selects a private developer/investor;
- The selected private sector company develops an implementation plan and submits the plan for approval; and,
- Once the plan is approved the project is implemented.

The development of partnership arrangement with private sector ranges from a simple transaction BOOT (build own operate transfer) to more sophisticated sale of bond and right. Details on specific cases are summarized by types of arrangement.

*Roads (including tunnels and bridges: Build Own Operate Transfer)*

In the mid-1960's, local roads were repaired and constructed by communities through self-help efforts led by the government's New Community Movement. Seoul-Inchon Expressway was first built by four private companies. The companies had to acquire private land for construction. They negotiated the terms of operation without appropriate data to support their demand. It was the first such expressway in Korea. The government set the level of tolls and transfer point. Another expressway (Unyang-Ulsan) was constructed by a private company with similar terms. Both projects were losing money for the companies and they transferred the facilities back to the government before the agreed time period. Some case examples are illustrated in Exhibit 2. A report from the Korea Research Institute of Human Settlements stated that the road projects would break-even if Korea Highway Corporation (KHC) increased tariffs 100 percent and extended the transfer period to 45 years.<sup>5</sup>

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<sup>5</sup> Korea Research Institute of Human Settlements, "Report on Private Investment in Transportation Sector," Seoul: October 1991.

Tunnels and bridges were built by the private sector through an open bidding process. The tariffs and operation period were set by local governments based on previous experience in similar projects. Some are already taken over by the city. Kuduck and Manduck tunnels lost 3,000 million won (Donga) and 7,000 million won (Daerim) respectively in 1989.

**Exhibit 2: Cases of Private Investment in Transportation Sector  
(Canadian \$1=610 won)**

Facilities	Investors	Amount (M won)	Current Management	Period for charge
1. Seoul-Inchon Expressway (24.0 km)	Hyundai, Saman, Daerim, Sambu	9,600	KHC*	1968-1994 (26 years)
2. Unyang - Ulsan Expressway (14.3 km)	Hanshin	3,600	KHC	1969-1994 (25 years)
3. Namsan Tunnel (1.5 km)	Hanshin	1,600	City of Seoul	1970-1994 (24 years)
4. Bukak Tunnel (0.8 km)	Hanshin	1,500	City of Seoul	1971-1994 (23 years)
5. Wonhyo Bridge (1.5 km)	Donga	24,500	City of Seoul	1981-2001 (20 years)
6. Kuduck Tunnel (1.87 km)	Donga	29,100	Donga	1984-2002 (18 years)
7. Manduck Tunnel (1.74 km)	Daerim	34,600	Daerim	1988-2008 (20 years)

\* Korea Highway Corporation is a wholly government owned corporation)

Source: Korea Research Institute of Human Settlements

#### *Parking Facilities (Build Operate Transfer)*

In 1988, the City of Seoul started several parking facility projects involving private sector development and operation. Projects are to be given back to the government after 15 - 20 years. The government may then lease facilities to new operators, or renegotiate terms with existing developers/operators. The sites are located as city owned lands such as underground parking in municipal parks, and superstructure on flood drainage areas located in key sections of the city. There has been a high level of competition among private sector developers for development and operation of these facilities. Recently the

city transferred towing rights of illegally parked automobiles to private companies. The parking charges are relatively high (market based and not regulated by government) and initial investment is low compared to other transportation projects such as bridge or tunnel construction.

### *Urban Transit System (Regulated Market)*

Korean buses and taxis are major urban public transportation modes provided to the public by private entrepreneurs. Subways are provided by transit authorities in various cities. The tariffs levied for public transit are subject to government approval. The city authorities also dictate routes and bus schedules and license bus companies and taxis.

Seoul, the capital of Korea, has a population of 12 million living in an area exceeding 600 square kilometres. It offers a variety of transport modes, the most important being buses, which account for 60 percent of all trips and 75 percent of public transport trips.<sup>6</sup> Buses were the major mode of transportation until the expansion of the subway system and the increase in the number of private automobiles. The number of private automobiles in Korea increased 21.5 percent per year during the period from 1983 to 1989. This trend is increasing over time.<sup>7</sup>

Bus fares are controlled by politicians. Prices have been frozen for a number of years. Both the quality and financial condition of the bus service operated by the private sector have deteriorated rapidly. When politicians determine prices in the public interest, they often fix them at a low level, hoping thereby to please citizens and gain votes. But the results can be harmful to suppliers. Some of the bus companies could not maintain operations with the fare structure.

Taxi companies have experienced similar problems. The Ministry of Transport and the Seoul Municipal Government introduced a new type of taxi service with higher fares (about twice the current regular taxi rate). Taxi drivers in Seoul were known for offering illegal shared service (which means a driver stops along the route to pick up or drop off passengers without obtaining the permission of other passengers in the taxi), and for demanding substantially higher than the metered rate.

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<sup>6</sup> City of Seoul, Seoul Statistical Yearbook, Seoul, 1991 and 1992.

<sup>7</sup> Ministry of Transportation, Transportation Yearbook, Seoul, 1991.

### *Railroad Station Development (Sale of Development Right)*

Recent approval of the Seoul-Pusan High Speed Rail System will require construction of new stations in major urban centres. These new stations will be constructed by the private sector. The Korea Railroad Commission will issue terms and conditions for private partners. Private sector companies will use their own finances to construct stations. They will not only build new stations but also business complexes which include local transit transfer facilities to enhance transport centre function, as well as commercial functions and related facilities for earning revenues on the railroad station site provided by the government. They will manage the business for a certain period of time (usually 20 years) to retrieve their investment. Then management rights will be returned to the government-private sector cooperatives.

### *Port Development (Sale of Bond and Management Right)*

Recently, the Korea Container Harbour Development Corporation (KCHDC) announced that four private companies were selected, through an open bidding process, to construct and manage part of the container harbours in Pusan and Gwangyang<sup>8</sup>. The KCHDC issues development bonds (valued of 200,000 million won) and the four companies will purchase 12,500 million won annually (total 50,000 million won per company) between 1994 and 1997. The KCHDC will contract out construction of the harbours. Both harbours will have four piers that can be accessed by a 50,000 ton container ship as well as related loading, unloading, control, crane and storage facilities. The four companies will have rights on the overall management of the container harbours under the supervision of KCHDC.

## **5.0 Factors for Successful Partnership**

In Korea, existing legislation provides sufficient leeway for the private sector to provide transportation infrastructure. Road construction and maintenance contracts are open for private sector bids. They can charge tariffs to recuperate their investment and regional and local governments can subsidize portions of the construction costs.

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<sup>8</sup> "Private Sector Participation: Pusan and Gwangyang Container Harbours", Hankook Ilbo (Korea Newspaper), Page 5, September 28, 1993.

Some of the conditions that may create problems in private sector provision of road services (including tunnels and bridges):

- Upon completion of construction, a private company has the right to manage for a certain period (determined by the government) to recover their investment by charging tariffs then transfer back to the government;
- Appropriate forecasting is not carried out, nor are there guarantees on the return on investment or profitability. The government would not allow private road investors to operate service stations along the road to improve profitability; and,
- The level of tariff is dictated by the government without appropriate calculation of the return on investment. Usually, politicians determine prices in the public interest, they often fix them at a low level in order to please voters. At the same time any negative publicity such as extending the charging period for tariffs, or charging tolls where there is congestion.

In the transportation sector, a number of activities fall within the traditional functions of the public sector. Users of public transport should know transport operators meet appropriate standards. The government has a role to play in establishing standards and in providing inspection services. Government regulation of fares is a debatable issue, but travellers should be aware of the fares charged before embarking on journeys. In all cities the provision of road space is a government responsibility. The government has to ensure that existing roads will be used efficiently and that the road network is expanded when necessary. Good management of road space can include preferential treatment for public transportation. In cases where the government wishes to have transport services that cannot be profitable, it can contract out such services to private operators with subsidies.

Through an analysis of the transportation sector in Korea, it has become clear that many considerations must go into developing a successful partnership between the public and private sectors. For example, careful consideration must be given to the following issues:

- Profitability (return on investment, size of market, risks involved, required initial investment);
- Role of producer and buyer (public sector producer and private sector buyer in utilities, private sector producer and public sector buyer in road construction and industrial parks);

- Innovative management structure (public sector funded or owned enterprises, management contracts/agreements, contracts from public agencies, consumer cooperatives, public and private sector joint venture);
- Civil service environment (the Korean government went through civil service reform to eliminate corruption and to simplify the inefficiencies of government service delivery; this kind of environment is a prerequisite to have successful partnership with private sector); and,
- Incentives for the private sector (such as tax, financial subsidy, loan guarantee, provision of special rights, etc.).

Experience indicates that some infrastructure service projects are better suited for regional development. For example, if the initial investment is too big for one company (harbours, airports, railroad, etc.), a project should probably be publicly owned or funded, perhaps by an international financing consortium. There are other projects, such as industrial parks, urban renewal projects, urban parking facilities, waste collection and disposal facilities, which can be constructed and, managed by the private sector in an efficient, effective manner. The public sector may issue management contract/agreements to improve the public sector's revenue and reduce negative externalities (air pollution, noise, water contamination, real estate speculation).

## **6.0 Conclusion**

In Korea, the private sector plays a pervasive role in the provision of infrastructure and services. Using the transportation sector as a case in point, this paper explored the ongoing debate on how best to manage scarce resources to achieve maximum regional development. The Korean experience may help other public sector managers to improve service delivery in times of economic restraint.

We may conclude that the obstacles to the development of infrastructure and public services by the private sector are due to institutional weaknesses and governmental regulations that make such involvement too risky or unprofitable. These problems can be summarized as follows:

- persistent inflation of the currency discourages savings and cuts off potential sources of capital;

- government control of prices and the risk of expropriation magnify investment risks to unacceptable levels;
- lack of security discourages investments that need time to mature;
- bureaucratic requirements can depress the entrepreneurial spirit; and,
- controlled pricing by government.

The important point here is that the politicization of prices can be extremely harmful. When politicians determine prices in the public interest, they often fix them at a low level, hoping to please voters. But the results can be disastrous to suppliers, as has been the case with urban transit pricing in Seoul.

Some operations may be successfully moved to the private sector. In some sectors of infrastructure and services, the private sector can operate effectively on a commercial basis, without government guarantees. There is a strong case to be made for the international agencies, multinational development banks, and international investment banks that lend directly to governments to wind down operations in these sectors, and encourage the involvement of commercial organizations. If funds are not forthcoming from existing financing houses, new ones can be established, such as a financing organization to specialize in provision of a service. Guaranteed government loans may be offered to the private sector to deal with the risks of political violence, expropriation, and currency situations.

The impacts of infrastructure investments can relate to the size and distribution of economic activities. In general, transportation infrastructure investments improve economic development, international competitiveness and living standards. If we choose and develop innovative arrangements, infrastructure investments can save time, reduce costs, increase productivity and economic growth well in excess of the investment and negative externalities. In the public sector, managers need to make special efforts to ensure that partnership with the private sector yields productive gains to the economy in excess of the costs.

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