A STUDY ON FACILITATING INFRASTRUCTURE FINANCING IN KOREA

By

Seil Kong

THESIS

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Professor LEE, Seung-Joo

ABSTRACT

The level of stock and quality of infrastructure facilities is a critical barometer of a nation's industrial competitiveness and living standard. Building and operating such facilities have historically been the government's responsibility largely due to the difficulty in commercialization and the unique characteristics of infrastructure facilities.

However, budget constraints and public resistance to tax increases have compelled most countries to turn to private sources for financing infrastructure facilities, especially during the 1990s. Korea has not been an exception. The Korean government has initiated a private infrastructure investment system for the first time in 1994 by enacting "The Promotion of Private Capital into Social Overhead Capital Investment Act".

Unfortunately, the performance of infrastructure investments by private entities, so far, has failed to live up to the original expectations. Only 7 out of the 51 projects announced by the government are currently under construction, and merely 3 projects have procured financings.

Looking back at the current situation, I found a few fundamental problems.

First, it appears that government officials have not been able to make a clear distinction between the government's procurement contractors and the private investors of infrastructure projects. Consequently, an element of transparency and the importance of fairness in agreements have often

been overlooked. In addition, project risks have not been properly identified and adequately assessed through relevant feasibility studies and contract packages.

Second, the current system and announced projects have been structured without devoting much considerations for the aspect of financing which is one of the most critical factors for success in infrastructure projects financed by private investments.

70 to 80 percent of funds for infrastructure projects needs to be financed by financial institutions or in capital markets so that a project would not even be started without an appropriate proof that it will be financially viable.

For the most part, these fundamental deficiencies have prevented the proposed projects from securing adequate financings and subsequently caused poor results for most privately financed infrastructure investments.

It would be helpful to grasp a better understanding of the existing problems in searching for feasible solutions. To do so, I reviewed the basic concepts of infrastructure financing, the current situation in Korea and a real case, Inchon International Airport Freeway.

The basic concepts show the global standard related to private investment through characteristics of infrastructure project, the concept of BOT and definition of Project Finance. Comparing the basic concepts with the current situation, I found that quite a few basic principles were

overlooked, namely, the general criteria of financing and characteristics of infrastructure projects. Such observations can be evidenced more clearly through a case study. The financial market, to make the matters worse, has shrunken since the IMF bailout.

In conclusion, I would like to suggest a system that conforms to and better addresses the basic principles. Important procedures to be incorporated into the system are project identification, role differentiation between private and public participants, and concession agreement as a contract between government and private investors. In turn, I tried to show more detailed criteria to be included in each phase based on real world practices.

Finally to solve the limitations on current domestic funding sources, I tried to introduce various financial instruments being utilized in international markets as well as new domestic sources.

In relation to the system, there exists other substantial impediments such as BIS risk weighting factors and classification of loan soundness which should eventually be deregulated.

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Chapter I. Introduction

1. Background of the Research

Infrastructure facilities (which is called Social Overhead Capital facilities in Korea) generally include transportation, water utilities, telecommunications, power and gas. whether a country has the optimal level of infrastructure facilities is an important barometer of a nation's industrial competitiveness and economic development.

The development and rehabilitation of infrastructure facilities has traditionally been financed by the government. However, since the 1980s, governments in both developed and developing countries began to induce private investment to this sector. The primary reason was that the government needed to relieve public resistance to tax-raising and encourage the creativity and efficiency of the private sector in project implementation, and at the same time cover the shortage of public funds to the infrastructure investment.

According to a World Bank study(1998), private investment in infrastructure projects worldwide had rapidly increased from U$44.4 billion in 1990 to U$243.8 billion in 1996.

The precondition for private investment in infrastructure is that the financing of the project through the domestic and international financial markets is suitable for the infrastructure financing scheme. In other words, the bankability of the project is the key point for private

investment in infrastructure.

Korean investment in infrastructure facilities was increased significantly in the 1990s. However, its competitiveness is still far behind other developed countries. IMD of Switzerland reported that Korean competitiveness in the infrastructure sector ranked 31st in 1998 among 46 countries surveyed.

Logistics cost in Korea is twice as high as in the developed countries, which causes to weaken national competitiveness as well as steady economic growth.

The Korean government announced that investment in infrastructure would be one of the its highest priority to boost economic growth and increase employment after the IMF crisis. Korea Research Institute for Human Settlements("KRIHS") estimates that the government's current investment plan for 1999 to 2003 requires 100 trillion won, but only 50 trillion won can be financed by the government budget. Therefore, Korean government has to induce private investment for the timely development of infrastructure.

The Korean government has made great efforts to induce and facilitate private investment in infrastructure. The first step was the enactment of "Promotion of Private Capital into Social Overhead Capital Investment Act"(1994. 8. PPC Act) and "Private Investment on Social Overhead Capital Act".(1998. 12. PI Act). The latter was an overall amendment of the former.

Although the Korean government has announced 51 projects(of which total cost is estimated at 43 trillion won) as target projects for private investment through 『the Basic Plan for Private Investment』 since 1995, the number of projects under construction is only 7 projects, and for only 3 projects, of which the total cost is 2 trillion won, financing was closed. So far, there has been no foreign capital participation.

Although the Korean government has felt keenly the importance of private investment in infrastructure, and domestic and foreign companies have acknowledged the business attractiveness of infrastructure projects, the result up to the present has been disappointing.

2. Objective of the Study

The objective of this study is to investigate solutions for activating infrastructure financing which is a prerequisite for facilitating private investment in the sector.

With the enactment of the PPC Act, government officials underestimated the importance of the financial market in raising fund for infrastructure projects.

It is estimated that, 70 to 80 percent of the total project cost could be financed on the basis of the projects' bankable structure from the financial market. The rest of project cost could be procured through the financial market based on the project sponsors' credit ratings.

Market pressure has forced the Korean government to take steps to improve the legal system for infrastructure financing, but these actions have only been a temporary makeshift.

Therefore, this study will focus on the key points to better understand the private investment system and to facilitate financing on the basis of the global standard and best practices. The study will also suggest the right direction for the system and possible solutions to the financing constraints.

Infrastructure financing involves the participation of many interested parties such as the government, sponsors, financial institutions etc. The participants' proper understanding of the basic concepts of infrastructure financing is essential to the successful results, thus, the objective of my study is to give them some indicative directions.

Also, it is hoped that this research would be helpful for foreign investors who have been hesitant to invest in the Korean infrastructure projects due to insufficient information.

3. Organization of the Thesis

The thesis is organized into the following four sections.

i) Basic concepts of infrastructure financing

ii) Review of the current situation

iii) Case study

iv) Suggestions for improvement

The review of the current situation section is divided into the following parts.

i) Issues causing stagnant private investment in infrastructure
ii) Lack of basic concepts and immaturity of market
iii) Weakness of the private investment system
iv) Condition of the financial market

The case study will be focused on the Inchon International Airport Freeway project which has been the first project since the enactment of PPC Act.

As a conclusion, I suggest the following two points to facilitate infrastructure financing in Korea.

i) Establishing a workable system
ii) Facilitating fund raising

Chapter Ⅱ. Basic Concepts of Infrastructure Financing

1. Characteristics of Infrastructure Projects

1.1 Financial Characteristics

The most troubled aspect of infrastructure project is the difficulty in the initial cashflow and late reaching to BEP (Break-even Point) caused by the huge amount of initial investment and low level of initial demand against supply capacity.

On the other hand, the economic duration of infrastructure is longer than that of private projects because infrastructure has no product-life cycle. This can be shown as follows.

[Figure Ⅱ-1] Comparison of Private and Infrastructure Projects in Terms of Net Income

Thus, the resolution of the initial shortcomings in cashflow always be controversial among the involved parties. Even in the case of some

projects with good profitability, they can be bankrupt because of failure to meet the initial cash requirement.

The profitability can also be limited because toll/fee rate may be restricted during operation and the rate of return itself may be controlled by the government.

1.2. Limitation on Marketability

The criteria to select private investment project should be based on the priority of the host government, and the priority has to be decided according to the social rate of return and commercial rate of return. If a project with high social rate of return and low commercial rate of return is developed through BOT(Build-Operate-Transfer) procurement, the shortage in commercial profit should be complemented by the public sector.

Marketability in various sectors of infrastructure may be different from one another due to differences in potential for competition, potential for cost recovery, and the characteristics of the service. This means that marketability works as an index indicating which sectors will be more appropriate for BOT projects.

Table Ⅱ-1 shows the marketability index by sectors.

[Table Ⅱ-1] Comparison of Marketability in Infrastructure Sectors

Sectors		Potential for Completion	Potential for Cost Recovery	Marketability Index*
Trans-Portation	Railbed and stations	Low	High	2.0
	Rail freight and passenger service	High	High	2.6
	Urban bus	High	High	2.4
	Rural road	Low	Low	1.0
	Urban road	Low	Medium	1.8
	Primary and secondary road	Medium	Medium	2.4
	Port and airport facilities	Low	High	2.0
	Port and airport services	High	High	2.6
Power	Thermal generation	High	High	2.6
	Transmission	Low	High	2.6
	Distribution	Medium	High	2.4
Telecom	Local service	Medium	High	2.6
	Long distance and value-added	High	High	3.0

※ Source : World Bank (1994)

* High : 3, Medium : 2, Low: 1

In Korea, while the telecommunication and power sector with high marketability can be a going-concern like a private enterprise, the transportation sector with low marketability can not be a going-concern. However, government officials tend to consider both of them on the basis of the same standard. In the case of low marketability sector, more government role is required.

1.3. Ambiguity of Implementing Entity

BOT projects are implemented through construction, operation, and maintenance phases. The project period typically takes 20 to 50 years. Government plays a consistent role during the lifetime of the project due to the characteristics of public goods. But private participants generally take charge of each phase on the basis of each specialty such as construction, operation, and maintenance.

Government officials often ignore these characteristics because they regard BOT projects as private enterprises. This is, of course, a misunderstanding which may cause much confusion and difficulties in the future.

Government should be a strong sponsor during the whole lifetime of the project. Thus, each participant's role should be stipulated in advance in the agreement.

2. Concept of BOT

2.1 Definition

BOT is a terminology for a model or structure that uses private investment to undertake the infrastructure development that has historically been the preserve of the public sector. Project financing is the cornerstone of the BOT approach. It means essentially that lenders look to the project's assets and revenue stream for repayment rather than to other sources of security such as government guarantees or the assets of the

project sponsors (investors).

In a BOT project, a private company is given a concession to build and operate a facility that would normally be built and operated by the government. The private company is also responsible for financing and designing the project (but, in Korea, project design is given by the government, which may restrict private sector's creativity). At the end of the concession period, the private company returns ownership of the project to the government. The concession period is determined primarily by the length of time needed for the facility's revenue stream to pay off the company's debt and provide a reasonable rate of return for its effort and risk.

In a properly structured BOT project, the host government decides on the need for the project and its scope, requires that the design, performance and maintenance of the project be tailored to the objectives of the country and selects the private sponsors by means of an appropriate bidding or evaluation process in order to arrive at a price that is fair to both the host government and the sponsors.

BOT arrangements are designed and implemented as public-private-partnership, with private sector finance and serving the public interest. BOT projects offer significant potential for technology transfer and local capability building and for helping to develop national capital market, as well as a variety of other benefits.

Most BOT projects are first identified by the host government. Through

a published request for proposal the host government asks for bid to have a particular project delivered on a BOT basis. It is also possible, however, for a project opportunity to be first identified by a private entrepreneur, who will propose it to the host government.

A number of BOT projects have now been successfully completed and put into operation and many others are on the way.

2.2. Advantages and Challenges

It is true to assert that infrastructure development should be the government's role for many reasons. It requires huge amount of money, project period is long, and the level of risk is beyond the private sector's control. It produces a variety of social benefits and costs that cannot be justified on a commercial basis. And it should be consistent with the national development strategy, which justifies direct government intervention.

Of course, infrastructure projects have the above characteristics, and BOT projects may require a wide range of government involvement. And projects which meet both the government's social and economic objectives and the private sector's financial objectives can be implemented on the BOT basis.

According to UNIDO(UN Industrial Development Organization), the BOT approach has the following advantages

-Use of private sector financing to provide new sources of capital, which reduces public borrowing and direct spending and which may improve the host government's credit rating.

-Ability to accelerate the development of projects that would otherwise have to wait for, and compete for, scarce sovereign resources.

-Use of private sector capital, initiative, and know-how to reduce project construction costs, shorten schedules and improve operating efficiency.

-Allocation to the private sector of project risk and burden that would otherwise have to be borne by the public sector. The private sector is responsible for the operation, maintenance and output of the project for an extended period (normally the government would receive protection only for the normal construction and equipment warranty period).

-The involvement of private sponsors and experienced commercial lenders, which ensures an in-depth review and is an additional sign of project feasibility.

-Technology transfer, the training of local personnel and the development of national capital market.

-In contrast to full privatization, government can retain the strategic control over the project.

-The opportunity to establish a private benchmark against which the efficiency of similar public sector projects can be measured and the associated opportunity to enhance public management of infrastructure facilities.

On the other hand, a critical challenge for developing countries is to identify the factors that make projects "financeable" in the private sector. That means financially viable projects, which often requires government's

support. There is a common misconception that the "public" nature of the project can be largely ignored, and the host government often assumes that it has minimal involvement in BOT projects. That assumption is not well-founded and government must lead as well as provide support in most projects.

2.3. Phases of a BOT Project

A typical BOT project passes through eight phases: project identification, government preparation of bidding, sponsor's preparation to bid, selection, project development, implementation, operation and transfer. Each phase involves a number of contractual documents, which together will form the contract package for the project which will become the security package for financing.

[Table Ⅱ-2] Phases of a BOT Project

1.Identification	- Identify project - Define form of financing - Preliminary feasibility study - Assign project manager and team
2.Government Preparation for Bidding	- Procurement procedure - Pre-qualification - Concession agreement - Tender document (Basic Plan) - Bid evaluation criteria
3.Sponsor's Preparation to bid	- Form consortium - Feasibility study - Identify potential partnership - Submit bid package
4.Selection	- Evaluate bids - Clarification / Adjustment - Project award
5.Development	- Form project company - Equity contribution - Loan agreement - Financial closing - Construction contract - Insurance contract - O&M agreement - Offer contract package
6.Implementation	- Construction - Test - Acceptance - Technology transfer & capability building - Evaluation
7.Operation	- O & M(Operation & Maintenance) - Inspection - Training - Technology transfer & capability building
8.Transfer	- Transfer procedure

Source : UNIDO(1996).

2.4. Government Incentives and Other Forms of Support

Host government must recognize the need to provide incentives and some direct or indirect support in almost all BOT projects. The extent and type of support varies considerably, depending on the country risks, the feasibility, the country's need for the project and the competitive position of the host government.

Some of the major tools (including related cases) are as follows :

○ Tax incentives

○ Land and other logistical facilities to be provided
- The North-South Highway Project in Malaysia
- The Bangkok Second-Stage Expressway Project
- The Sydney Harbour Tunnel

○ Government guarantees and stand-by financing
- Indirect guarantee of operating income and stand-by loans
  · Energy sector [off-take agreement]
  · The Sydney Harbour Tunnel [minimum income]
  · Pakistan toll road [minimum income]
  · Malaysia, Pakistan, Turkey [stand-by loan]
- Protection against the loss of expected revenues due to competing projects
  · toll road projects
- Guarantee of commercial freedom
  · Euro tunnel
- Subsidy support
- Currency exchange protection

· convertibility, availability, transferability

· foreign exchange rate risk

- Interest rate reimbursement

· high inflation

- Uninsurable force majeure events

· extension of the concession period

· buy-out provisions

· compensation provisions against political risk

○ Loans and equity contributions

- the North-South Highway Project

- the Sydney Harbour Tunnel Project

○ Assurance of no competing projects

○ Completion and performance incentives and penalties

○ Attractive risk-reward provisions

- risk sharing between the host government and the sponsors

- how to structure the level of return

· pre-arranged formula

3. Project Finance

3.1. Basic Concept

Although the term "project finance" has been used to describe the financing of project regardless of recourse to sponsors, recently it means the financing to project company(SPV) with limited recourse to sponsors. Its repayment mainly relies on the cash flow and earnings of the project itself and the main collateral is also the cash flow and asset of the project itself.

Related to the above mentioned, we should clearly understand the main characteristics of project finance.

First, cashflow generation as a collateral
Second, the meaning of project asset as a collateral.
Third, limited recourse to the project sponsors.
Fourth, reasons for establishing special purpose vehicle("SPV")
Fifth, various types of funding(financing)

3.2. Cashflow as a Collateral

Cash flow means the in and out flow of cost, expenditure and revenue during construction and operation period. To the lender, the size and tendency of net cash flow before repayment of debt service is important. To the investors, the possibility of dividend more than the recoup of investment and the expected return through net cash flow after repayment of debt service is important.

Of course in conventional long term financing, the projected cash flow to meet debt service in feasibility study is also important to determine lending, but normally the banks tend to recourse to the physical assets which have a exchange value enough to repay the debt or to the revenue of other businesses successfully carried out by the company. If the banks regard the above-mentioned items as reserve to meet debt service instead of the projected cash flow stream itself, the determination of lending comes to an end after reviewing the cash flow presented by the company

or evaluating the cash flow by banks themselves.

In project finance, however, the cash generated from the project is the most important securities for debt service. In this regard, the future cash flow stream should be evaluated as a present cash flow stream when we determine the lending. Namely, future cash flow stream should be fixed as a present value for evaluating project feasibility.

In addition, if we regard the cash flow as a security for lending, cash generation should be protected and guaranteed by the way of making sales contracts and operating and maintenance agreement in advance for fixing estimated revenues and expenses at the time of evaluation. With regard to the control of fund (cashflow), an escrow account should be established for monitoring the cash in and out flow.

In case the project risks are allocated and transferred to all related parties such as equity contributor, construction company, operating company, and host government excluding project undertaker, the project itself can be exposed to the controllable limited risk. Then, the project is implemented with limited recourse basis so it can raise the fund in debt market. If there is no risk sharing among the related parties, the project has no choice but equity funding in the capital market. The following two cases of the Dartford Bridge Project and the Channel Tunnel project illustrate the difference between debt and equity based financing.

The Dartford bridge project crossing the Thames in England was given concession of operating the existing two bridges from the government.

The sponsor had the right to use the cash flow prior to the operating period for the project itself.

In the Dartford case, the sponsor was able to fix the cash flow stream in advance to the extent that it could meet the debt service, so it was possible to raise fund in the debt market. As a reward, the sponsor took the construction risk through the fixed price turn-key contract.

The Channel Tunnel project, however, did not have any attainable cash flow stream and most of the risks were transferred to the project undertaker. So a large portion of the project cost was raised through equity.

In case the project shows a cash deficiency during the initial operation periods, we can reinforce project feasibility by the way of increasing the equity ratio, and receiving the subsidy or supports from the host government to reduce the cash outflow.

If the project undertaker cannot secure the project stability, it is difficult to raise fund in the debt market. Of course, the project could be simultaneously considered through adjustment of maturity, grace periods, and irregular payment of principal.

The capacity of most projects is designed to meet the maximum demand of the facility in the future, but such demand would be gradually increasing, thus, a tendency of cash deficiency during the initial operating periods is often found.

Moreover, the host government's subsidy and support to the construction cost are essential if the overall expected project return is below the return or doubtful of generating cash enough to recoup the invested money.

Under the assumption that the cash flow is stabilized under the given conditions, the project undertaker can start funding, fixing the cash flow structure, and implementing the project simultaneously.

3.3. Asset as a Collateral

All assets and rights relating to the project are assigned to lenders for financing. In this regard, common project finance is secured by fixed cash flows from the project and limited recourse to the project sponsors. However, there can be doubts about why lenders are seizing many types of collateral such as physical project assets, rights of operating, and stakes of sponsors even though they have already sufficient security over the project's cashflow generation.

The security in project finance is divided into firsthand security and secondhand security. The former is the right of control over the cash flows and the latter is to cover the loss in case of unpredictable cash flow distortion which will be caused by unidentified third parties' intervention. By securing project assets as collateral, the banks can protect themselves from alteration of cash flow stream in case the third party takes the project assets.

Assets as collateral in conventional financing should have an objective value of 120% as an exchange value over the face value of the debt. But in project finance, there is no problem even if the collateral has no exchange value. For example, the exchange value of right of operating in privatized road project in Korea may have a negative value. The right of operating is valueless if the expenses exceed revenues.

In addition, the construction contract and contractual right over the related agreement are conditionally assigned to the lenders. In some cases, it is indirectly regulated on each agreement through covenants related to lenders, and sometimes directly agreed with the lenders. In this case, the project undertaker's obligation is also assigned conditionally to the lenders.

3.4. Limited Recourse

In project finance, recourse to the project sponsors is limited on the condition of fair risk sharing among related parties. Limited recourse project finance scheme has been largely applied to the field of IPP(Independent Power Plant) projects.

The meaning of the limited is that recourse could be waived on a certain condition or could be applied to limited portion of the amount until maturity.

When the host government shows ambiguous attitude to risk sharing, and the users can not be specifically identified, risk sharing and transferring is very difficult.

In this case, the burden of project sponsor is generally greater than that of other cases. The worst case is that all risks are transferred to the project undertaker by way of joint and several obligations of the sponsors. The limited recourse means that in case the risk is allocated to several parties related to the project, each party is supposed to take the burden of being recoursed to a certain limited extent.

3.5. Special Purpose Vehicle

Special Purpose Vehicle(SPV) can be defined as a business entity incorporated only for performing its pre-specified project. Generally, it only retains project properties and related rights. In the case of external borrowing, however, it becomes the nominal borrower.

Of course the project sponsor can initiate a new project by direct funding whether it is a company or a consortium of companies. In this case, however, the project risk should be fully attributed to the project sponsor and it is the creditworthiness of the project sponsor itself that backs up the financing of the project. Therefore, when the project sponsor wants to reduce the burden of project risk even though it has a willingness to support the project with its own credit, or the project sponsor needs to treat the debt as a off-balance sheet transaction externally, it has no choice but to incorporate an independent entity.

And it is also necessary for the following cases : a company's financial covenants in other contracts restrict the debt-equity ratio; the project

sponsor is a public company whose external borrowing is prohibited by the law governing it (e.g. Indonesian state owned oil company) ; a company can have some tax benefits by establishing SPV. For example, in case the Korean National Railroad has not enough sources to finance a new railroad project and has no authority to borrow fund from the financial market, it can cover the shortfall by establishing a SPV either by itself or with other private firms.

For a project whose magnitude is beyond a company's own credit, such as an oil field development whose reserves has been previously verified, the company can finance the project by establishing a SPV based on the profitability of the project.

When a financial instrument relies only on the cashflow of the project, the pledge on the cashflow from the project has no effectiveness if the cash does not belong to an independent company. This can be applied to the case of external capital injection.

SPV can be organized as various types of entities ; On the one hand, it can be a complete paper company or it could be organized as an ordinary company. The organization depends on the project sponsor's decisions affected by the number of shareholders, the existence of a leading shareholder, the significance of the management of SPV, the possibility of future expansion and so on. In case project sponsor decides to establish an SPV with an ordinary company form, it should accept the burden of considerable additional costs. It also has to develop strategies for recruiting well-disciplined employees and reallocating them after the

construction. The scenarios for expanding the enterprise in the future must be considered.

In the case of a paper company, the management team of the project sponsor's existing company will engage in the project and hence it is necessary to establish the accounting principles by which accruing project costs are distributed between both companies.

3.6. Financing Sources

The most common instrument to finance SPV is a (syndicated) loan facility. The public offering, however, could also be a financing source since capital can be basically financed and the portion of capital to debt tends to increase if a company's return is flexible. The project sponsor can issue bonds to finance the project, which includes convertible bonds and bonds with warranties.

The (syndicated) loan facilities include loans from the World Bank and the regional development banks particularly for the projects in the developing countries, and loans from official entities such as export-import banks as well as typical syndicated loans from commercial banks. Meanwhile, in case of some particular financing such as a loan with collateral, or a guaranteed bond or a supplier's credit, where project sponsor is required to be guaranteed by financial institutions, the project sponsor can obtain the required guarantees using project finance scheme.

If necessary, the project sponsor could make use of financial instruments

from secondary financial institutions such as lease financing or CP. In case various types of financing are utilized, it needs to appoint a person who coordinates the interests of all participating institutions.

Table Ⅱ-3 illustrates an actual financing structure for the Paiton Power Plant project in Indonesia which utilized a project finance.

[Table Ⅱ-3] Funding Sources of Paiton Power Plant.

(UNIT:U$ 1,000)

Type	Supplier	Amount	Terms	Interest	Remark
Official loan	JEXIM(A)	540,000	construction+12yrs	fixed	
	JEXIM(B)	360,000	〃	floating	
	USEXIM	540,000	〃	floating	
	OPIC	200,000	〃	fixed	
Commercial	Banks(A)	180,000	construction +4yrs	floating	
Loan	Banks(B)	93,750	〃	〃	for cost overrun
Senior loan	Sum	1,913,750	(66%)		
Subordinated loan	Shareholders	374,000			
Capital	〃	306,000			
Additional capital injection	〃	300,000			for cost overrun
Shareholder taking	Sum	980,000	(34%)		
TOTAL		2,873,750	(100%)		

Source : Information Memorandum of Paiton Power Plant.

Chapter Ⅲ. Review of the Current Situation

1. Issues Related to Poor Performance

1.1 KRIHS's Survey(1998)

According to a current survey conducted by KDB and KRIHS to foreign institutions, the EU Chamber of Commerce , and the American Chamber of Commerce, the current system of infrastructure financing in Korea revealed the following weaknesses :

-Lack of transparent government policy, especially government's supporting role
-Lack of stability in recovery of investment-due to mainly lack of credible feasibility study and FX risk management.
-Lack of risk allocation structure among government, concession company and lenders.
-Lack of project implementation and administrative procedures based on world practice.
-High risk caused by political instability, bureaucratic process, imprudent criticism of mass media and specialist group, and invisible expenditure.
-Lack of systematic supply of credible information.
-From small and profitable projects at the beginning stage to larger projects (as suggestion)
-Wrap addition scheme for early dividend or stable cashflow (as suggestion)
-Clear resolution of various risks and uncertainty (as suggestion)
-Different rate of return on the basis of risk level (as suggestion)

1.2. Critical Constraints (World Bank, 1995)

The World Bank analyzed the reasons for the slow progress of private sector participation in infrastructure projects. The objective of the study was to obtain perspectives on the major issues and constraints in developing and implementing infrastructure projects in East Asia. The study identified the following seven major common constraints and issues.

-Gap in expectations and perceptions of risks between government and private investors
-Lack of clarity about government's objectives and commitment, and the complex decision-making processes
-Lack of appropriate sector policies and a transparent, stable and credible legal and regulatory framework
-Lack of mitigation and managing of risks
-Immature domestic capital markets
-Shortage of mechanisms to provide long-term debt
-Lack of transparency and competition and high transaction cost

1.3 Criteria for Successful BOT Project (UNIDO, 1996)

The decision whether or not to utilize the BOT concept will depend on the applicability of a project and the circumstances prevailing in the host country at the time, but host governments, sponsors(investors) and lenders will look at the following factors that are particularly important for success.

-The project must be financially sound, feasible and affordable.

-A BOT project requires a stable political and economic environment.

-There must be strong government support

-The project must rank high on the host government's list of infrastructure projects

-The legal framework must be stable

-The administrative framework must be efficient

-The bidding procedure must be fair and transparent

-BOT transactions should be structured so as to be finalized within a reasonable time and at a reasonable cost

-The sponsors must be experienced and reliable

-The sponsors must have sufficient financial strength

-The construction contractor must have sufficient experience and resources

-The project risks must be allocated rationally among the parties

-The financial structure must provide the lenders adequate security

-The currency, foreign exchange and inflation issues must be solved

-The BOT contractual framework must be coordinated and must reflect the basic economics of the project

-The public and the private sectors need to cooperate on a win-win basis

2. Lack of Basic Concepts and Immaturity of Market

2.1 Inappropriateness of General Criteria of Financing

In general, commercial banks' loan is supplied on the basis of stability,

liquidity and profitability. Unless a project provides security, manageable maturity and reasonable return, it can not raise fund. According to the practice of international financial markets, general maturity of commercial bank loans is 7 to 8 years at most and that of bonds with marketable rating is sometimes longer than 20 years.

In domestic market, however, bonds are mainly matured within 3 years, but the maturity of infrastructure loan is about 15 years. This reversed maturity structure between bond and loan is caused by undeveloped capital market. Thus, investors depend entirely on the financial institutions.

But, lack of legal system regulating the securitization of loan assets makes it hard for the financial institutions to obtain liquidity other than shortening the average maturity of their loan portfolio.

Therefore, in case of infrastructure project financed only domestically, its extraordinary long maturity makes the participating financial institutions exposed to an excessive risk, which is beyond the extent of rational risk management.

There has not been a case of overseas funding yet. Once, however, some domestic sponsors were internationally ridiculed because of asking foreign lenders for loan with maturity of around 20 years.

Unlike power plant projects where there can exist long-term supply contracts, as a transportation projects are generally required to guarantee their revenue up to a certain level or demonstrate their stable financial

viability for the purpose of structuring the security package for borrowing loans.

Up to now, government support has been insufficient. Furthermore, lack of understanding by government officials and auditing department forced contracts to be agreed without eliminating the possibility of arbitrary interpretation. These Korean practices have caused serious risk problems in infrastructure financing and in some cases, attempts to disregard the agreed contract were made in a provincial government project.

With respect to profitability, financial institutions are different from the stock market investors who expect a higher return for their higher risk taking. The current market environment, however, requires financial institutions to be exposed to higher risk without being compensated by higher return. Existing interest rates of infrastructure loans are not higher than those of corporate loans.

After the IMF bailout in 1997, developed financial systems and management techniques have been introduced rapidly to the domestic financial market. Thus, domestic infrastructure financing as well as foreign borrowings cannot be activated if the general criteria or principles of financing are ignored.

2.2 Structure Overlooking Characteristics of Infrastructure Project

Infrastructure project, due to its financial characteristics, are usually in the red for a few years from its initial operation. And, the charge for its

product or service is generally recognized as a public fare, and hence it is potentially under the government control.

For that reason, it is desirable for the government to provide subsidies for or set up standby credit facilities available to the project. Examples for these kind of support are found in the UK, Malaysia and Canada. Also, considering the profit cycle of infrastructure projects, the fact that deficits in the initial operating stage will be covered fully by the profit in the latter period should be taken into consideration when structuring a financial supporting system.

In Korea, however, infrastructure project's financial characteristics stated above do not get much attention. For example, even in case the initial deficit is clearly expected, government ignores it before the expected deficit is realized. Even worse, the rules for financial regulation force financial institutions to categorize their loans in deficits for 3 consecutive years as "precautionary" loans without exception. This provision severely disadvantages the financial institutions that give credit to infrastructure projects.

The level of fare for an infrastructure service should be set at a level similar to those provided competitively by the state owned corporation such as Korea Highway Corporation.

In most cases, however, project sponsors are required by government to price much higher - in an extreme case, by 250% - than the prevailing level of similar existing services. Establishing a high usage fee for private

infrastructure project is due to the fact that the degree of fiscal burden depends on the predetermined price level of concession agreement. Therefore, government generally has tried to reduce their fiscal burden by setting up a high usage fee instead of a reasonable level.

Related to its limitation of marketability, the project with higher commercial value rather than social(economic) value should be placed in the strategic list of infrastructure investment. Until now, however, there has been no clear criteria of priorities for inducing private investment. A lot of projects without business attractiveness tried to induce private capital, but the private sector did not participate in the bidding for those kind of projects.

The implementing entity of infrastructure project tends to be ambiguous due to its long project period and the participation of private capital into the originally public area. Therefore, it is critical for the success of a project that the structure of risk -allocating among interested parties- should be clearly defined in advance so that possible disputes on responsibility can be avoided.

Furthermore, the fact that most investors are civil works firms in the position of participating in both private investment projects and public procuring projects, makes the risk sharing structure somewhat confusing.

Consequently, a project structured without considering the characteristics of infrastructure project can not be financed.

2.3 Limitation of Funding Sources

Infrastructure financing can be structured under the multi-layered contracts for the risk allocation among related participants in the project. This fair allocation of various project risks depends on the deep understanding of contract structure and the necessity of cooperation by government and respective private participants.

Government officials, however, tends to transfer their own responsibility to other parties.

Also, for structuring an infrastructure project, it is necessary for the government to consider additional potential parties in the agreement.

But, government tends to ignore the potential financial parties intentionally. In this case, it becomes more difficult to compose a security package for enhancing the bankability.

Meanwhile, the domestic equity market is at an immature stage due to lack of public recognition and institutional drawbacks such as the terms required for a public offering. Thus, it is almost impossible to finance the project through equity market instruments.

Taking it into consideration that infrastructure projects have some unique properties including the ultra-long maturity and the fact that the level of risk varies by each phase of construction, start-up and operation, it is necessary that the pool of financing should be a mixture of direct financial market instruments such as bond or equity and some indirect

ones including loan for the purpose of reducing the level of recourse to sponsors and financing expenses.

In Korea, because the direct financial market for infrastructure project has not yet been developed, projects heavily depend on the loan market. And as already mentioned, the fact that infrastructure projects demand the financial institutions to take higher risk than the level they could manage results in the contraction of the loan market itself and the consequent high funding costs.

3. Weaknesses in the Private Investment System

3.1 Wrong Direction

3.1.1 Lack of Recognition of Possible WIN-WIN GAME

Private investment project is the system devised to induce private capital with various incentives to invest in social overhead capital projects (infrastructure projects) which was traditionally provided by the public sector.

Consequently, the incentives for the project should be attractive enough to make the investors recognize it as a good business opportunity and accept the huge funding burden from its initial investment.

That means the most critical factor for the success in private investment is the cooperative pursuit of win-win strategy for mutual benefits by both government and the private party. This kind of public-private partnership

requires a comprehensive appreciation of the project's financial characteristics, its limitation on marketability, and the ambiguity of the implementing entity.

The PPC Act of 1994, however, started with the basic concept of "financing and project risk taking by private, but regulating and ordering by government." That was enforced while maintaining the existing frame of government procuring system and empowering government with arbitrary interpretation.

There was no such recognition that the terms of contracts should be mutually negotiated and determined for mutual benefits. Furthermore, all the requirements for project permission was subject to government approval. For some practical needs, however, the "Concession Agreement" was made but without legal basis and the rigid attitude of government officials toward infrastructure project was reflected in that agreement.

In case of financing the project without strong support from the government, the project inevitably depends entirely on the joint liabilities of several sound sponsors.

It is almost impossible to develop infrastructure project by private investment due to this distorted structure.

3.1.2 Insufficient Transparency

As mentioned, private investment depends heavily on a clear and

impartial sharing of roles among the related parties. To prevent a failure in the interim, relevant laws and contracts should be transparent.

In Korea, however, there has always been latent possibility of disputes between the government and the project undertaker due to the vagueness of the terms of concession agreement.

The private sector is also responsible for this vagueness to some extent. In case the project sponsors, who are generally construction firms, are only interested in the constructing process and thus pursue narrowly business interests during the construction process only, or in case the project sponsors themselves lack recognition of the concept of fair contract, they have no interest in the opportunity of long-term operating business and hence may not pursue maximization of investment return. Under this circumstances, the private firms as well may pay little attention to the transparency of the contract.

Considering the availability of financing during such a long construction and operating periods, however, the aggravating burden of financing due to the ambiguous contract is inevitably attributed to the private firm. (In our system, there has been no consideration of bankability at all from the beginning.) Unless the creditworthiness of the project sponsor can afford to cover the shortfalls from that uncertainty, no financing is available at all.

3.2 Problems of Each Phase

3.2.1 No Criteria for Selecting the Project

Target projects for inducing private capital are supposed to be projects that have commercial viability through previous review of its feasibility or that can be implemented commercially with proper fiscal support from the government.

The criteria for deciding the feasibility of the project is whether the project sponsor could generate a return including the reasonable margin from the project through the collection of utility fare, which is price competitive and also acceptable to the users.

Projects which do not satisfy these commercial criteria should be implemented by fiscal resources.

The target project should also be the one which has a priority among national development policies. This is because the project can be expected to draw stronger support from the government than others.

At the initial stage, it is desirable to start with the projects whose volumes per unit are relatively small. According to the World Bank report(1994), the average project magnitude in medium income countries is approximately U$ 300 million.

In Korea, however, there has been few feasibility research for the selected projects and both the user's acceptability and competitiveness of

the price have been ignored. Almost half the projects promoted by the government since 1995 do not have any proposals tendered by the private sector or, for the worse, many of them even lack of a basic plan for the project. The rest of the projects could not have financing partners at all.

We can find a typical example for the absence of criteria in the Seoul Beltway Project and High Speed Railway Project linking east and west. In the former project, the construction of the southern area of the Project which had relatively heavier traffic and thus more commercial value was allotted to the public sector and that of the northern area where there has little traffic and less commercial value to the private sector. In the latter, though it was designated for somewhat political reason, it is hard to say that the project had any possibility of being implemented.

The average volume of each project for the same period was more than double of other countries and the magnitude of private investment in Inchon International Airport Freeway Project was up to approximately 1.8 trillion won.

3.2.2 Inappropriateness of the Bidding System

The purpose of competitive bidding is to designate a bidder with the most favorable terms as the project undertaker. It is necessary that the business incentive of the project should be well presented in advance to various candidates and the process of designation should be transparent.

The result of feasibility study should be announced openly. In case of

less profitable projects, as most infrastructure projects usually are, the government should include sufficient subsidy as a compensation for possible losses. The detailed government support other than subsidy as well as the level of standard utility fare should also be fully stipulated in the document such as the draft concession agreement.

With respect to that, relevant laws or guidance are required to include the provisions on the direction of policies, the level of rate of return, the structure of risk allocation, and the assurance of convenient administrative system for implementing the project.

In Korea, it is the bidder's responsibility to decide the profitability of a project with his own hypothesis.

Government does not perform a preliminary feasibility study on its planned project, and thus does not hold any standard by which it can decide the extent and nature of support.

As a result, the number of bidders is inevitably very few, and unnecessary time and effort is consumed in the process of negotiating and selecting the bidder. In some cases, even after the appointment of the project undertaker or the negotiating partner, the project does not progress as planned nor do subsequent negotiations move forward at all.

3.2.3 Inappropriate System for Investment Return

According to the report from KRIHS(1998), the governments of

South-East Asian and South American countries as well as the UK guarantee on average the project IRR(Internal Rate of Return) of 17 to 18%. The foreign companies participating in the Inchon International Airport Railway project require at present a return on equity of 23%. Meanwhile, the expected return generally depends on the risk profile of the various projects sectors. For example, among railroad, road, and power plant, a railroad project requires of the highest return, road project the next highest and finally power plant project is the lowest. Rate of return is generally measured by either FIRR(financial internal rate of return) or ROE(return on equity).

In Korea, the average rate of return is around 13% which is at the level of WACC(weighted average cost of capital). It is natural for a country with such low return, considering the competition among countries for inducing foreign capital, that there is no outstanding inducement of foreign capital into it.

Even though the situation is expected to improve, the level and standard of rate of return for investment are still uniformly applied to various projects regardless of their own risk profile.

Until now, the rate of return is calculated based on the cost of capital (including the risk premium of 0.5%) and the construction margin which will be added to its cost of capital. But, the criteria are unclear, and its formula structure is different from global practice.

3.2.4 Unsuitable Concession Agreement

A concession agreement is said to be the most basic and comprehensive document for implementing an infrastructure project. Even though the direct contracting parties are government and project undertakers, the agreement should be the one that can coordinate various sub-agreements among other related parties in the project.

The content of the concession agreement is supposed to be clear and concrete.

The agreement includes prerequisites to be satisfied for being effective and becomes a judging criterion for possible conflicts involving utility fare, risk taking, performing standard, government support and so on.

The problems in our system are caused by the insufficient appreciation of the agreement's functions. There was, in fact, even no understanding of the reason of its existence when the private inducement system first started. It was natural that integration or coordination with other agreements such as financial ones was entirely out of consideration.

Thus, some critical provisions for bankability were omitted. The concession agreement was only used as a tool for requests or orders by government officials.

The project under construction without any fixed financing closing(for example, Chonan-Nonsan expressway project) has added confusions to its progress.

In most cases, execution design is given by government, hence private initiatives such as value engineering for cost reduction are excluded from the project at all.

The complicated and tedious access for administrative matters and settlement of public resentment by investors is one of the main factors that delay the completion of the project.

In some cases, government arbitrarily constructs competing facilities, of which construction was agreed to be restrained for some period, for protecting the profitability of the private investment.

Buying an insurance against contingent accident is also restricted for the reason of aggravating public burden or fear of possible audit.

The process for resolution of disputes is unclear.

The most serious is that whole burden is attributed to the private side when the interpretation of the concession agreement is unclear.

Consequently, the concession agreement can not play its proper role because of the insufficient understanding of the whole frame of private investment in infrastructure projects and the evasive attitude of government officials.

3.3 Failure in Following Initial Objective of Revising System

3.3.1 Direction of Announced Reform

Before enforcing the revised PPC Act, the government announced the policy direction for the amendment in the hearing of March 5, 1999. The following are the main issues.

ⅰ) Allowing the level of rate of return up to that of competing countries

Subject to mandatory project feasibility study, the government will suggest estimated project cost, service fare and the magnitude of fiscal subsidy to induce competition from the private sector. The rate of return will be determined through negotiation on the basis of the government's guarantee of upward adjustment from the present level of 13% to 18%.

ⅱ) Upward adjustment of supporting level of operating revenue

90% of projected revenue will be supported.

ⅲ) Newly established foreign exchange risk covering system

Foreign exchange risk would be reduced by the following scheme : Volatility of exchange rate within ±10% of range will be absorbed by the sponsors ; that of ±10% to ±20% through service fare adjustment; and that over ±20% through fiscal support.

ⅳ) Establishment of private investment support center in KRIHS

The government expects that this center will play an important role in

eliminating unnecessary procedures and promote specialization.

v) Reinforced tax incentives

The main issue is the tax reduction including application of zero tax rate to VAT imposed when the facilities are transferred. With these amendment, the government expects to have more globalized system with such features as proper return, risk allocation scheme, improvement of financial environment, one-stop administrative system, and so on.

3.3.2 Missing Direction in Implementation Process

The Korean government has recently amended the PPC Act, which became effective as of April 1, 1999. The new act includes various measures to encourage private investment.

The main contents are as follows :

i) Administration of various implementing forms depending on the recommendation of the project undertaker(Act Clause 4 and 25)

ii) Mandatory preparation of feasibility study on the project over 200 billion won(Act Clause 8)

iii) Provision of concession agreement between project undertaker and the government(Act Clause 13)

iv) Creation of a one-stop, private investment support center at KRIHS (Act Clause 23)

v) Provision of establishing Infra Fund(Act Clause 41-44)

vi) Provision of buy-out(Act Clause 59)

In order to make the revised PI Act effective, several essential steps should be backed up.

For example, relating to the above mentioned items i), the improvement of the related tax system is essential. For example, for BOT scheme, reduction of property tax is required.

For item ii), the credibility of the feasibility study and the restrictions on the government budget should be cleared. In some cases if the project feasibility study is conducted by internationally reputable experts, it may cost up to several million dollars.

For items iii) & vi), they were already provided in the agreements, out of necessity, but the related clauses and provisions are inserted in the newly revised PI Act for confirming its legal effectiveness. To be a substantial standard for implementation, in case of iii), it should include detailed procedures on the basis of understanding of its function. In case of vi) it is important to include substantial requirements and procedures.

Relating to iv), unless the center is independent from authorities concerned, it would produce an additional procedure. The center should be supported by expert group and sufficient budget.

Relating to v), even though related clauses may help the acceleration of establishment of infra fund, but it is impossible to raise fund only with provision in PI Act.

Following the revised PI Act, the related Decree was also amended, which also became effective on April 1, 1999. The main contents are as follows :

i) Incentives on the project as suggested by the private sector
ii) Additional adjustment of project cost fixed by the concession agreement is not allowed.
iii) Conditions and procedure of buy out
iv) Role and scope of the private investment support center.

But, the major guidelines such as the scope of government support, project rate of return, risk sharing among the parties, tax incentives, other financial terms and conditions for private capital inducement are not provided in the Decree, so we have to wait another follow-up measures.

Such measures include both the "Basic Plan for Private Investment 1999" by the Ministry of Planing and Budget as a guideline to the authority concerned and the "Basic Plan for Project Facilities" promulgated by the authority concerned. Also, it includes co-operation and coordination among the authorities concerning tax incentives and deregulation of financing restriction.

According to the draft of "Basic Plan for Private Investment 1999", it is supposed to provide the following :

i) Strong government support at an early stage. But, in this case, the government shows ambiguous attitude over the project rate of return which will be the criterion to decide the scope of government

support.

ii) Ambiguous criteria on the distribution of operating risks which require parliamentary consent and government's budget. On the other hand, the private participants' scope of risk allocation is explicitly reinforced and cleared.

iii) Stipulation of the detailed procedure

Meanwhile, there is no co-operation at all among the related authorities such as the Tax Authority, Fair Trade Commission and Financial Supervisory Board, all of whom have an influential power in this matter.

The draft by the government to improve the private investment system had the right direction reflecting the recommendations of the private sector and containing the results of the intensive study conducted by KRIHS. But in the process of its formulation, these efforts seem to have deteriorated due to the lack of understanding among related authorities and the tendency to avoid responsibility.

Considering the rigidity of the authorities concerned such as the Ministry of Construction and Transportation (MOCT), Ministry of Maritime Affairs and Fisheries(MOMAF), Korea Railroad Corporation(KORAIL) and the municipal authorities, we worry that future investors will still encounter difficulties and be discouraged under the current ambiguous system.

4. Condition of the Financial Market

The domestic financial market has been in serious difficulty since the IMF bail-out, as a result of financial restructuring, credit crunch and various audits.

In the course of financial restructuring, five banks(Donghwa, Kyong-Gi, Chung-Chong, Dongnam, Daedong) were forced to be expelled from the market. Since bank mergers are not over yet, a few more banks are expected to be closed soon.

Banks such as Seoul Bank and Cheil Bank have difficulties in making a loan decision for new business projects because the acquisition process has not finished yet, and ChoHeung Bank has the same problem because merger is in progress.

Banks such as IBK, Agricultural Cooperative and Korea Housing Bank are hardly expected to explore new loan decisions for a while because they are subject to their own missions and management strategies.

The merchant banks, which have played a considerable role in the market, are facing a worse situation. Except for a few healthy ones, most of them seems to wait a long time to reenter the infrastructure financing market.

As a result, the institutions, which are capable to give credits, are no more than 10: KDB, Hanvit, Kookmin, KEB, Shinhan, KorAm, Hana as

well as a few insurance companies and merchant banks.

These institutions, however, are regulated to limit their credits to the same borrower within 25% of their capital and in case of huge loans, within 10%.

Judging from all these, mobilizable fund in the domestic market will be limited to a certain level.

[Table Ⅲ-1] Capital Stock of Major Banks

(unit : billion won, end of 1998)

Bank	KDB	Hanvit	Kookmin	Shinhan	KEB	KorAm	Hana	Total
Volume	4,312	3,845	3,180	2,413	1,664	975	863	17,252

On the assumption that the financial environment would greatly improve, the domestic capital market, foreign financial market and various Infra Funds as well as the domestic financial market would be the main financing sources.

In the bond market, it is expected that the first SOC bond will be issued sooner or later, though there has been no experience of issuing long term bonds because of lack of market acceptability and rating skills. This success will be the chance of opening a new chapter on infrastructure financing. Furthermore, bond issuing will level up the quality of financing sources.

A few projects tried to attract foreign capital through direct investment

as well as borrowing. But, the attempt is still at the initial stage because decisions are not made about the condition of participation, even in the case letters of intent are exchanged. It is desired to raise money on Korean-won basis because of exposure to exchange risk and fluctuation of fees from different currencies between investment and project revenue. In this case, the coordination of interests among domestic and foreign lenders should be first resolved.

[Table Ⅲ-2] Current Status of Foreign Capital Inducement

Area	Project	Main Project Undertaker	Foreign Investors	Remark
Road	Pusan-Goje Bridge	Daewoo	GTM, France	* 50% share, tunnel under and above the sea
	Taejon Riverbank Road	EGIS, France Hwa Hong group ,Singapore	EGIS, France Hwa Hong group, Singapore	* 90% share, * arrange two third of Liability, U$120m through Deutsch Bank * if they can not reach on the terms and conditions, Taejon city should pay the expenses which have already used
Railroad	Incheon International Airport Railroad	HYUNDAI	Alstom, France Bechtel, USA	* 20% share and E&M TURN KEY * CM and arrange total Debt (U$3.2bil)
Power Plant	LG ENERGY	LG	PowerGen, UK	* share 49.9% * arrange U$150m of liability
	POS ENERGY	POSCO	Tractebel, Belgium (negotiating)	

There is no more restriction on raising funds in foreign financial market as capital control is lifted sooner than expected. The biggest issue is the possibility of raising foreign funds on favorable conditions. The billion-dollar global bond issued recently by KDB on the condition of 161 basis point spread over LIBOR is regarded as a good indicator for the domestic companies. But, there might be some limit given concerns on money expansion and weakening of export competitiveness, caused by the rapid increase in foreign currency reserve.

There are at least 10 infra funds, which are targeted mainly at the Asian market, and there are mutual funds to maximize returns by investing in equity. Inducing infra funds would diversify funding sources, and stimulate private investment by making contracts more transparent and improving project structure according to the international standard.

In Korea, the plan to establish infra funds is in progress and it is predicted that a 500 million-dollar fund will be made as brother fund by domestic and foreign investors within this year.

However, it will be impossible to attract investment from infra funds without assuring a 18~25% return.

Chapter Ⅳ. Case Study : Inchon International Airport Freeway

The subject of this case study is the "Inchon International Airport Freeway Project" which is the first project since the PPC Act was enforced. When "the Basic Plan for Private Investment 1999" is announced, it is possible that the concession agreement will be partly modified. But this case study is based on the current concession agreement.

1. Project Overview

This project is to build and operate a 40.2km freeway linking Inchon International Airport and Seoul metropolitan area.

Total project cost is 2,098 billion won and is composed of 440 billion won equity, 1,300 billion won debt and 358.4 billion won government subsidy.

The project company has the right to build, operate and maintain the toll road on the BTO(Build-Transfer-Operate) basis.

The investors would recoup the investment cost through operation revenue for 30 years.

The risk factors related to this project were analyzed as follows:

i) technical risk and cost overrun risk of Youngjong Grand Bridge which is the 1st 2-story self-anchored suspension bridge in the world to carry rail and roadway between Youngjong island and the mainland

ii) the completion date which is October 2000 can not be delayed because of the New Airport opening schedule

iii) completion delay of airport facilities or surrounding facilities, the discrepancy of the role allotment plan between Kimpo Airport and New Airport, market risk of deficiency of forecasted traffic volume which can be caused by failure of Hub airport function due to airport expansions by vicinity countries such as Singapore, Hongkong

iv) reconstruction cost by contingent accident and the deficiency of revenue

v) initial operation cost caused by the shortage of revenue

vi) bankruptcy of some shareholding company or lenders.

The construction was started in January 1995 and is now in progress properly pursuant to the schedule.

2. Basic Plan of the Project

For developing of the basic plan for the project, a task force was created in Korea Traffic Institute(KOTI). Members of the task force were accountants, government officials, researchers of KOTI and so on including myself. It was a very difficult job because there was no precedent on that kind of work. The most difficult thing, which is the same nowadays, was lack of understanding on the private capital inducement project. This Basic Plan for the Project became the model for

other projects thereafter.

The content of the plan is as follows.

1. Purpose of the Project

2. Outline of the Project

   2.1 Major Contents of the Project
   2.2 Progress of the Project

3. Project Bidding and Implementation Conditions

   3.1 Bidding Method and Qualification Requirement
   3.2 Investment and Operation Conditions
   3.3 Technical Requirement
   3.4 Performance of the Project
   3.5 Change of Major Conditions
   3.6 Authorization and Delegation

4. Designation of the Project Company

   4.1 Designation Procedures
   4.2 Preparation and Submission of the Proposal
   4.3 Evaluation of the Business Proposal

5. The Schedule and Expenses

Major controversial points were as follows.

① Project cost

The project cost announced in the basic plan for the project was 1,187.6 billion won. In the case of this project, execution design was already made, so it was required that detailed item statement of project cost should be issued and fixed price of project cost of 1993 should be revised into fixed project cost of 1995 for the convenience of applicants. But due to insufficient preparation, "about 1,300 billion won as of 1995 " was announced and tough negotiation was anticipated.

With reference to project cost announcement, the following should be reviewed beforehand.

i) whether the project cost must be observed as the upper limit or some part of the project cost can be adjusted some time later
ii) whether it is possible that the construction cost can be modified when the construction method is changed.
iii) what is the standard of changing design drawing during construction period.
iv) The scope of project cost excluding construction cost.

② Government subsidy on construction cost

Government subsidy of investment volume should be determined through the feasibility and profit analysis. Private investors could get proper gain

aside from compensating for investment cost. It was suggested by government consultants that expenses for land and site acquisition, basic facilities for the future railroad, the first section of Youngjong Grand Bridge and Bang-wha Grand Bridge should be included into the scope of government investment. But, the first section of Youngjong Grand Bridge and Bang-wha Grand Bridge were excluded.

③ Equity ratio and the share of the leading company

The higher the equity ratio, the steadier is the project. Extremely speaking, in the case the equity ratio is 100%, the project undertaker can maintain the business with the toll revenue even though the revenue can cover only general operation cost such as labor expenses, maintenance & management cost.

If it is impossible to assure toll revenue during the operation period beforehand, the project should be carried out on the equity base.

But the viewpoint from the government was that how construction companies which were in the stage of financial difficulties could put their money in the SOC project. The government could not understand the difference between equity financed by the sponsors and debt which the project company borrows from the lenders.

After long argument, it was announced that more than 25% of the total private investment cost should be financed by equity. The level of 25% is pursuant to the average equity ratio of manufacturing industry at that time.

The project undertakers have a strong tendency to decide the upper limit of equity on the basis of their own execution budget ratio.

As a general rule, the equity ratio should be determined not to show the shortage of net cash flow during the operation period. So the equity ratio may depend on case by case.

The equity ratio is another expression of the undertaker's willingness to make a success of the project. And it was requested that equity should be used up before first drawdown of the debt capital financed by lenders because of financial needs and government's worry about project interruption.

With reference to the equity ratio, if the undertaker is a consortium, the total amount of the big 3 companies' share should be more than 50% and the share of leading company should be no less than 25% of total investment.

It is because there was a need to avoid project interruption or flimsy construction due to disturbance and confusion. In addition to that reason, it was decided considering the problem from conglomerate classification of Monopolistic Regulation and Fair Trade Act, and the Bank Act.

④ Letter of loan confirmation

Letter of loan confirmation can be issued after signing the Loan Agreement. It is international practice to issue a 'letter of intent'

describing an outline of financial terms. In our situation, even issuing the letter of intent is difficult since the role of the government was not apparent, and since that the basic plan for the project could not be the complete guideline for the project. But it was obligated to submit the letter of loan confirmation. As a result, a strange type of letter, that is conditional letter of loan confirmation, was created.

The project undertaker can submit the letter of intent with detailed financial terms on the approving day of the execution program, or the government has the right to cancel the concession agreement if the financing is not closed until approving the execution program. The project undertakers may submit something discussed with financial institutions with financing plan when they submit the proposal.

⑤ The project period

30 years is notified as the project period.

But, whether the scope of the management and operation right includes the right to use underground is not fixed up to now.

⑥ The traffic demand

It should be based on the traffic demand proposed by the government.

The private sector claimed that the traffic demand proposed by the government is the physical maximum level to decide the capacity of the

freeway in terms of design, and on a commercial basis the traffic demand would be much lower than that of government.

The traffic demand proposed by the government was calculated on the basis of cost-free expressway. And the analysis of price elasticity of demand was not accomplished because the freeway business would be a monopoly by 2005 and railroad and other substitute freeway would be constructed by private capital.

⑦ Completion of the construction

It was expected that the construction should be completed on Dec 31. 1999, which was decided not on the basis of the reasonable calculation but on the basis of the opening of the Airport(Jan. 2000).(During the negotiation, government acknowledged that it was unreasonable)

⑧ Payment of liquidated damage

The concession company shall pay the amount equivalent to 0.1% per day of the net construction expenses of the uncompleted portion until the date of actual completion of the construction.

⑨ The adjustment of the toll and the project period

Toll and operation period can be adjusted in case of uncommon cost overrun, more than 20% excess of traffic demand gap, Force Majeure and so on. But, concrete conditions as well as government subsidy was

requested to be notified, but that request was not accepted. Therefore, arguments would be expected when government subsidy is needed.

⑩ Government subsidy during operation

It was expected to be in the basic plan that government would play the role of indirect demander. But, the basic plan just repeated the related provisions of the PPC Act.

About the following important agenda of BOT projects, the basic plan should include the concrete criteria and the clear procedure of government support.

(i) The excess of construction cost
(ii) Whether to keep or adjust the toll
(iii) Shortage of minimum revenue
(iv) On Force Majeure

And, "buy-out" provision should be included in the basic plan.

The basic plan for the project should be the guideline for structuring the project. And it should provide the private investors all the potential conditions of related contracts.

In other words, the basic plan should include the government's role which can induce competition among potential investors and the transparent criteria which leads to no argument in the process of contracting the concession agreement.

But, in case of this project, the regulation on the private sector was clear, but that on government was ambiguous and easily avoidable.

Consequently, it could not induce competition among private companies and would have a harmful effect on future private investment projects.

3. Submission of Proposal

The Proposal was submitted by the sole consortium which consisted of 14 companies(3 companies gave up thereafter) including Samsung Engineering & Construction as the leading company.

The following is the structure of the proposal.

Chapter 1. Application form and written oath

Chapter 2. Status of sponsors.

Chapter 3. Capital input plan

Chapter 4. Financial planning of the project company

Chapter 5. Calculation of the toll

Chapter 6. Estimated financial statement

Chapter 7. Contingent finance plan

Chapter 8. Construction plan

Chapter 9. Management and operation plan

Chapter 10. Public interests and creativity

Chapter 11. Incidental business plan

Chapter 12. Requests for government support

[Table Ⅳ-1] The Summary of the Proposal

Classification	Contents	Basic Plan for the Project
Total private project cost	1,414 billion	1,300billion
Operation Cost	3,480.3billion	-
Discount rate	12%	Corporate bond's yield rate on secondary market at the announcement day : 14.95%
Toll	7,400 won(231won/Km)	-
Construction period	67months('95.10-2001.4)	51months('95.10-'99.12)
The cost of 1st section of Youngjong Grand Bridge	Exemption	Repayment
Shareholders' Capital contributions before the debt-financing	Equity injection and debt-financing simultaneously	Equity injection before debt-financing
Letter of loan confirmation	1 trillion won	1.3 trillion won
Government support		
· Excess construction cost overrun of Youngjong Grand Bridge	Government financial support on the amount over 20% excess of the cost	-
· The construction cost of Bang-wha bridge (143.9billion)	Government Investment Request	-
· The traffic demand of residents in Inchon	Request	-
· VAT on the ownership transfer	Exemption	-

4. Negotiation

The key points of the negotiation were ⅰ) construction cost, operation cost, discount rate, the cost of Youngjong Grand Bridge section I, the construction cost of the Bang-hwa bridge, which could affect the level of toll, ⅱ) construction period, ⅲ) request for government assistance.

To adopt the proper toll(3,500~-4,000 won suggested by government), government consultants suggested that government finance the Youngjong Grand Bridge section I and the Bang-wha Bridge.

The consultants reported that 'construction period' announced by government was unreasonable.

"To induce the traffic demand of the residents in Inchon" was unsuitable for the necessity of punctuality of this freeway.

As for insurance, the government lacked the understanding of the necessity of the insurance. Therefore, the project company persuaded the government to agree to insure the project by reminding of Sung-su bridge which had broken down.

The insurance is a critical element for mitigating the project risk.

For the 'discount rate', the realized interest rate was applied to the debt and the rate of return of corporate bond in the secondary market plus 0.5% of risk premium was applied to the equity cost.

For 'Government assistance', the project company insisted that concrete conditions and processes be notified in the concession agreement to prevent arguments and disputes on preferential treatment, which was concluded to be fixed by the additional agreement after the concession agreement. Finally, the terms for the Buy-Out was agreed.

The main issues of negotiation were government's avoidance of responsibility and sponsors'(who were all construction companies) interests related to construction. Meanwhile, the analysis and mitigation of project risks were treated relatively lightly with lack of basic understanding of them.

5. Concession Agreement

The Ministry of Construction and Traffic and the New Seoul International Airport Freeway Co. Ltd. agreed as follows in the form of concession agreement on Oct. 27, 1995.

But, a few controversial issues were deferred, and all the provisions related to the government's obligation were ambiguous and provided the possibility of arbitrary interpretation.

Part I : General

Part II : Basic agreement

Part III : Implementing procedure

Part IV : Construction

Part V : Management and operation

Part VI : Toll

Part VII : The Force Majeure

Part VIII : Termination of concession agreement

Part IX : Dispute resolution

Part X : Confidentiality

Part XI : Miscellaneous

The main content which was agreed between the government and the project company are as follows:

① Time limit of incorporation of SPV

② Total private project expenses

The net construction expenses out of the total private project expenses

shall be based at first on the price prescribed in the design presented by the government. And, the change in the total private project expenses due to a change in price, or change in design shall be settled after it occurs.

③ Construction period

It shall initially be sixty months. Although the design may change, it shall not exceed sixty-three months.

④ Payment of liquidated damage

The concession company shall pay the amount equivalent to 0.1% per day of the net construction expenses of the uncompleted portion until the date of actual completion of construction pursuant to the notice sent by the competent governmental authorities as liquidated damage.

⑤ Insurance

With respect to the project, the concession company shall be insured as determined under the proposal.

⑥ Government assistance

The government shall actively cooperate for the timely receipt of the government approval, and shall construct the Youngjong Grand Bridge Section 2 at its own expenses and shall assign it to the concession

company so that the concession company may manage and operate it as part of the freeway in accordance with the PPC Act and this agreement. The repayment of the construction cost thereof shall be indemnified.

⑦ Operation costs

Operating costs are 843 billion won. These consist of the costs for maintenance and repair, personnel expenses and other expenses, insurance premium and the costs for the operation of related facilities.

⑧ Discount rate

The discount rate shall be computed making sure the opportunity costs on the contributed capital to the concession company and the economic profits of it.

The opportunity costs on the contributed capital to the concession company shall be based on the no-risk interest rate of bank guaranteed bonds with a three year maturity plus 0.5% of the added interest rate.

When calculating the initial toll at the time of completion of construction, the actual expenses shall be applied to the loan interest rate from lenders. Based on current interest rate, as of September 28 1995, the ROE would be 14.30% and the toll would be 4,010 won and the discount rate would be 8.89%

⑨ Adjustment of toll for the project period

i) Over 20% difference in the traffic volume to the estimated traffic volume.

ii) Damages or expenses due to the Force Majeure or other causes which are not attributable to the Concession Company(including the case where the New Airport is not open by the time of completion of the construction of the Freeway)

iii) A substantial shortage of operating funds due to extreme fluctuations in the interest rate.

⑩ Financial support

i) If the toll and the operation period cannot be adjusted, or if damages, expenses and shortage of operating funds of the Concession Company can not be resolved by an adjustment only of the toll and the operation period, the government may provide subsidy or long-term loan from the government's fund pursuant to the PPC Act and the relevant law within such scope as may be necessary to prevent the dissolution of the Concession Company or to maintain the toll at an appropriate level.

ii) The details of the subsidy or the long-term loan shall be determined by 'separate agreement' between the government and the Concession Company at the time of implementation thereof.

⑪ Termination

□ The cause

· The case that government may cancel the Concession agreement and cancel the appointment of the Concession Company and management and operation rights.

· The case that the Concession Company may give notice of termination to the government.

i) When the Parties to this agreement have failed to reach an agreement within 60 days after the commencement of discussion under the Force Majeure.

ii) Under the circumstances that toll should be adjusted, Government does not, without just cause, adjust the toll and operation period, grant subsidies or long-term loan or take any required actions, when such circumstances are not cured within 60 days after the dispute of a notice by the Concession Company requesting the government to take remedial actions.

iii) When the loan agreement is terminated prior to its term and a substitute lender can not be located within 60 days thereof.

□ The payment for the Buy-Out

The appropriate value of the Freeway(or, the appropriate value of the Freeway plus an amount for the appropriate value of the management and

operation right) at the time of termination.

□ Assignment of debt

In the event this Concession agreement is terminated prior to the maturity, the debts for which the Concession Company can not repay the lenders until the payment is made pursuant to the principles of the payment for the But-Out, shall be assumed on the same terms by the government pursuant to applicable laws or by another Concession Company appointed by the government.

6. Risk Mitigation for Financing

6.1. Credit Risk

Since SPV is just a paper company, it does not have a proper credit rating enough to comfort related financial institutions against rainy days. If the lender is not fully sure of their loan's proper repayment, lending will not be made. To be provided financing for any project by any financial institution, it needs sponsor's financial and managerial support both during the construction period and the initial operation period. For this purpose, it is needed that not only SPV but also sponsors(in case of infrastructure project, government is also included) are responsible for loan repayment according to both the loan agreement and sponsor guarantee agreement.

In case of Inchon International Airport Freeway Project, 11 companies

invested equity and participated in the construction of the road. Their credit rating were various from excellent to mediocre. They wanted to take responsibility in proportion to their equity investment. In case of any one of sponsors' bankruptcy or credit rate deterioration, there might be a great possibility that the project itself would suffer from that result. Also, there might be a possibility that delay of project completion or abandonment of project occurs due to disagreement of sponsor's interest. Moreover, the final beneficiary, the Korean government, severely misbehaved; it tried not to take any responsibility that it had to take, for example, on destruction of road or interruption of project due to force majeure(war, civil insurrection, natural disaster). Instead, it only wanted to play a role of superintendent.

In so far as commercial banks are concerned, they had no need to finance that project through project finance scheme since there were a lot of financing opportunities in conventional financing market by taking security on physical assets. From the perspective of commercial banks, lending money to construction companies through PF was nonsense because the credit rating of construction companies was lower than that of manufacturing companies and construction companies could not provide collateral that manufacturing companies provided at that time. Therefore, any commercial bank was not ready to participate in syndication for PF project.

① Sponsor/the credit rate of construction company

Most of the 11 companies are among the top 30 construction companies in Korea. At the same time, each of them was a member of the 30

Korean chaebol group. The credit rating of them is above average. Moreover, the information that the representative company, Samsung Engineering & Construction will be merged into Samsung Corporation will increase the credit rating of that company.

In accordance with the 'sponsors guaranty' and 'sponsors commitment agreement', sponsors will guarantee the repayment of principal and interest for both the construction period and the initial 3 to 5 years of operation period. After that period, sponsors will make up for the deficiency of debt service.

In accordance with the 'shareholders agreement', they will not sell down their shares until the completion of construction to prevent SPV's credit deterioration. In accordance with the 'sponsors guaranty' and 'sponsors commitment agreement', each sponsor basically will guarantee bank loan in proportion to its equity share but in case of any sponsor's bankruptcy the other remaining sponsors will share the bankrupted sponsor's responsibility. This will prevent SPV from insolvency and delay of project completion, in case of any sponsor's bankruptcy.

② Maintaining credit rating of SPV

In accordance with the 'loan agreement', SPV will not take any debt in addition to the agreed loan, and there will be a ceiling on SPV's debt/equity ratio, and, there shall be restriction on dividend policy.

In accordance with the 'loan agreement', 'sponsors guaranty' and

'concession agreement', sponsors or government will support SPV for the purpose of debt service or operation expenses when it is needed due to the shortage of revenue.

In accordance with the 'shareholders' agreement', sponsors will provide what is needed to accomplish the project goal.

③ Securing government support

In accordance with the 'concession agreement', government will provide proper relief when it is needed. For example, government will provide financial aid such as long term loan, subsidy and give put option when SPC asks government to buy project assets in some cases. The government will have obligation to cooperate with financial institutions involved.

④ the credit rating of insurance company

The internal insurance arranger is Samsung Fire & Marine Insurance which is a leading company in that area. It is also reinsured by a well -known international insurer.

6.2. Construction Risk/Technology Risk

In infrastructure project, since the size of project is huge and the construction period is long, it is perceived that cost overrun or completion delay often happens.

Also, whether an applied construction technology is new or not and whether the construction company has much experience or not is important.

There might be instances that construction object will collapse due to various reasons. When that happens, the damages from that collapse can be covered by insurance. If that is all covered by insurance, there is no need for financial institutions to worry about the collapse. What matters is that damages cannot be fully covered by insurance, and it makes SPV fail to pay debt service due to the delay of completion or excessive expenditure on recovery.

In that case of Inchon International Airport Freeway, Youngjong Grand Bridge can be an issue, since it costs 60% of all project and it uses new technology in both designing and construction, and no construction company in Korea has any track record in that method. That makes the lender worry about both cost overrun and delay in start-up. Moreover, 11 companies are scheduled to construct its own specific area and no company will take responsibility for the completion of the whole project.

In so far as project site is concerned, it takes much land including military area, fishing area and so on. To prevent delay in construction, it is needed to secure that land within the construction schedule.

To make matters worse, there is a possibility that sponsors or construction companies may give up the construction or the operation due

to uncertainty of profitability.

① Fixing construction cost

Total project costs consist of construction cost, additional expenses, taxes and public charges etc. The construction cost is capped on the basis of '95 constant price in the 'concession agreement', and the construction contract was made on the basis of that price.

Adjustment of construction expenses will be done according to CPI or under some specific situation such as design change approved by Korea Highway Corporation.

② Transfer of technology and supervision of construction

Under the contract with Jodai construction company(original designer of Youngjong Grand Bridge) and Yusin corporation, the construction companies will receive the design and construction technology. Under the supervising contract with Jodai construction company, all the construction process will be supervised for the assurance of quality.

Under the 'loan agreement', it is a 'conditions precedent' of SPV that it submits expert's opinion to the lender

In constructing roads, tunnels and ordinary bridges, there will be few, if any, problems since the sponsors and the construction companies have enough experiences and a good track record.

③ Construction insurance

Under the concession agreement, destruction due to force majeure will be covered by government. Except destruction by force majeure, it will be covered by construction insurance according to insurance contracts.

In case of delay in start-up, the loss of expected revenue would be covered by insurance according to advanced loss of profit clause.

Under the clause of 3rd party liability, damages to person or property during construction will be covered by insurance.

④ Construction Performance Guarantee and Payment of Liquidated Damage

Under the concession agreement and basic plan for facilities project, the concession company will submit a written joint guarantee or guarantee insurance to the government.

Under the construction contract, each construction company will submit a written joint and several guarantee or a guarantee insurance to the concession company.

Under the sponsor guarantee, each construction company and sponsor will submit a written joint and several guarantee for loan repayment to the lender. In case of excessive delay in completion of construction, declaration of default can be announced by the lender according to the

loan agreement.

Under the concession agreement and basic plan for facilities project, debt to equity ratio should not exceed 25% and all the equity, about 440 billion won, must be invested before the drawdown of the loan.

In case of delay in completion of construction, the concession company shall pay the amount equivalent to 0.1% per day of the net construction expenses of the uncompleted portion until the date of actual completion of construction. So does the construction company to the concession company.

⑤ Purchasing project site and compensation for fishing right by government

Under the concession agreement, the government will secure project site with its own budget. It includes buying site and paying for fishing right.

⑥ Construction process inspection by Korea Highway Corporation, supervising expert company, and the lender

It is to be done according to the concession agreement and the loan agreement.

6.3. Market Risk

In so far as road project is concerned, it is indispensable to secure

traffic volume and keep toll at a reasonable level. To see the reasonableness of the traffic volume, it should be considered that the existence of competitive road or any plan of opening new road, the population and industry around the road. When it is needed to keep toll at a reasonable level, 'wrap addition' or taking some portion of construction expenses by government can be possible.

Since this project is prepared for people using Inchon New Airport which is under construction, it can be a critical factor for the success of this project that the airport can function as the hub of northeast Asia and be completed within projected time.

The new development plan around the new airport was not reflected in the expected traffic volume provided by government. And, the traffic volume was simply calculated on the basis of peak month for the purpose of civil engineering. Therefore, it is not proper to admit the traffic volume for the purpose of feasibility study. But, since there was no alternative plan, that volume was accepted.

In Korea, toll is regarded as public utility charges. Relating to that, there were two points that make the lender severely worry. One is the difficulty in collecting the calculated toll for the new road which will be nearly double of other expressway toll. The other is annual toll escalation according to CPI. Since government is sensitive to public sentiment, there is much possibility that government does not keep its agreement on toll.

By the way, it usually takes at least 3 years for the road project to have economic feasibility. For that reason, the lender made it a rule to ask the sponsors to provide proper security for that period. But the sponsors wanted to provide proper security only for physical completion period. There was, at least, a 3-year gap in providing security for the project.

The lender also worried about various interruptions during the operation period. Those included recovery expenses for ruined bridges, tunnels and roads, 3rd party liability to damages on people and property, and the needed capital for operation and debt service.

① Guarantee by government on minimum traffic volume and put option(buy-out)

In principle, the concession company may determine the toll for every fiscal year within the range of rate of increase of consumer prices of the previous year.

In addition to the above mentioned adjustment, when there is over 20% difference in the traffic volume of the current year compared to the estimated traffic volume given by the government, the toll and operation period may be adjusted upon discussion between the government and the concession company.

If damages, expenses and shortage of operating revenue of the concession company cannot be resolved by an adjustment only of the toll

and the operation period, the government may provide a subsidy or long-term loan.

If the government does not adjust the toll or provide financial support, that defect must be cured within 60 days after the dispatch of a notice by the concession company requesting the government to take remedial actions, otherwise, the concession will be cancelled.

In case of cancellation of this concession, the government will pay the sum of the appropriate value of the freeway (plus an amount for the appropriate value of the management and operation right) to the concession company at the time of termination.

Government will receive the previous year's report on traffic volume, and will have a right to appoint a public accountant for the valuation of the road when the concession is terminated.

② Determination of initial toll

The initial toll shall be calculated as follows to recover invested capital and proper margin, and shall be determined upon discussion between the government and the concession company.

$$\sum_{=1}^{n} CCt + CR = \sum_{=n}^{N} (ORt - OCt)$$

where as

$\sum_{=1}^{N} CCt$ is the present value of total investment

CR is the business profit

$\sum_{=n}^{N} (ORt - OCt)$ is the present value of net toll revenue

To calculate the discounted rate, the rate for equity is regarded as the rate for corporate bond plus 0.5% and the rate for loan means the actual borrowing interest rate.

For the purpose of keeping the initial toll at a reasonable level, the government pays for the expenses for project site, for the compensation of fishing right, and for the construction expenses of some parts of facilities.

③ Sponsors' responsibility for traffic volume shortage or operation expenses deficit

In accordance with sponsors' guaranty and sponsors' commitment agreement, the sponsors will guarantee the repayment of principal and interest for both the construction period and the initial 3 years of operation period. After that period, sponsors will make up for the deficit of debt service.

The ceiling will be the maximum cumulative deficit amount which is calculated against the worst scenario.

④ Buying insurance policy

The concession company will buy insurance enough to cover all the losses on people and property. CECR(civil engineering completed risk), third parties liability, business interruption insurance will cover damages to the road during operation.

The expenses for the insurance package will be included in the operation expenses in accordance with the concession agreement.

Due to the government's lack of understanding of insurance issues, insurance expense was a severe topic of dispute between the government and the project sponsors.

7. Problems

The biggest problem was that the position of the authority concerned was not different from wrong directions of the act(PPC Act). While the project company was forced to comply with the government's policy in relation to major matters such as construction period, design and construction cost, government's obligation was treated ambiguously or was avoided. Therefore, those burdens were inevitably all ascribed to the project company in the loan agreement.

Until now, the construction is in good progress, but the risk on construction delay still remains. It is still a concern that the occurrence of difficulties before and after the completion or in the early periods of

operation may be a trigger to some sponsors' bankruptcy.

The second problem was that the project was too large-scaled. Large scale and uncertainty on the terms and conditions of the project could not induce competition from the private sector. As a result, the government had trouble during the negotiation.

Chapter Ⅴ. Suggestions for Improvement

1. Establishing Private Investment System based on Global Standard

1.1. Direction

To facilitate infrastructure financing, first and foremost, a PPI(private participation in infrastructure) system based on a proper understanding of the basic concepts of private investment should be established.

Traditionally, building infrastructure facilities has been the role of the public sector. PPI is that private sector invests its money and originality to infrastructure projects instead of the public sector. The purpose of investing is not for charity but for business opportunities.

To make any PPI project finish successfully, all participants should cooperate with one another. The role of the government is to provide the best support from the initial stage to the final stage. Private participants should supply good quality capital, high construction technology, and high -level management skill. The purpose of PPI is not quarrelling to achieve one's own interest, but cooperating to achieve mutual interests. It should be a Win-Win game.

To arouse private sector's interest to infrastructure, all information needed to prepare for the tender should be stipulated in related laws and basic plan for facilities projects. If the system is not transparent and if it

fails to create competition among potential tenderers, the PPI projects have much possibility to fail, and, in the long run, the public sector will suffer from that result.

Public sector support will be different from project to project since each project has different risk profile and opportunity for profit. The support package will be determined on a project basis.

The transparency of selecting method of concession undertaker is indispensable in inducing foreign investment. Even though a project is very attractive, if transparency is not guaranteed, no foreign company will submit a tender offer.

The current tender system which selects candidates in one stage is different from that of international system which selects candidates in at least two stages. The international system is better than the Korean system in selecting more suitable candidates.

The concession agreement is the basic contract which influences various participants in many ways. It must be well prepared and cover all the contracts including the loan agreement. It must coordinate risk-sharing between the government and private participants so that it works effectively for the concession period.

The criterion of return on invested capital(ROIC) needs to be stipulated in 'the Basic Plan for Private Investment'. ROIC can be different depending on the characteristics of the projects. In the basic plan for

facilities project, a ceiling of ROIC should be stipulated. Basically, the rate of return should be set out by the form of FIRR. In case the size of project is too huge for concession company to take risk of floating interest rate, FIRR may be changed into ROE or a part of risk of floating interest rate may be borne by the government.

1.2 Criteria for Project Identification

To induce private capital and management know-how in constructing infrastructure, the criteria for identifying project should be described clearly in order to reduce the possibility of future failure to a minimum.

One main reason for PPI is making profit through this participation. Therefore, it is needed to establish a profit creating mechanism, and market mechanism should be applied to that project.

The size of project should be reasonable in order that private sector can raise needed fund easily and overcome worst case if it happens.

Environment protection is a very important issue. Basically, the private sector is less interested in social expenses than the public sector. If the cost of managing the influence of environment is high, that project is not suitable for PPI.

1.2.1 Marketability

Selecting projects for PPI should be based on government's priority for

infrastructure projects, and the order of priority should be ranked according to EIRR(economic internal rate of return) and FIRR(financial internal rate of return).

If EIRR is high but FIRR is relatively low, that project is not suitable for PPI due to lack of marketability. In that case, if that project is developed for the purpose of alleviating public sector's fiscal burden or improving the quality of service, that project can be developed by private sector on the condition that the public sector contributes a part of project expenses, for example, providing land and a certain portion of construction cost. Especially, for the road project, the government provides not only the right of using project site but also various supports to supplement the lack of commercial profitability.

Infrastructure should be regarded as a service industry which satisfies customer's demand. The expenses of providing that service can be recouped by users' fee on the condition that the projects should be operated on a commercial basis. Therefore, to select an infrastructure project for PPI, the government should evaluate the project in various aspects.

Needless to say, circumstances for PPI are different according to countries. Therefore, the same project will be treated in a different manner, but a common understanding is that communication or power plant is easy to induce private capital, while transportation project is more difficult to.

In the case of Korea, while the ownership of telecommunication facilities or power plant is assigned to the private sector, the ownership of road project is transferred to the government after completion, which make the concession company a temporary entity.

In other words, it is perceived that while private participation in telecommunication facilities or power plant is a privilege that can share the traditionally lucrative market with government on a going concern basis, participation in road project is a venture which need to share the burden with the government. Once the concession company recovers the invested expenses and proper margin, the concession right will be terminated. Therefore, the government's support and supervision should inevitably vary according to the characteristics of the project.

1.2.2 The Size of the Project

According to World Bank statistics(1994), the average project size of lower income countries is about 350 billion won, while the average project size of middle income countries is less than 260 billion won.

When the size of a project is large, it is impossible to distribute the inherent risks to the participants. Even though huge projects succeed in raising money, allocating the responsibility and distributing risks among participants will cause delay of construction.

Therefore, it will be more efficient to start with a small project, and through the experience enlarge the size of project.

In so far as a road project is concerned, it has a unique character in that it can not be successful without making all the roads a network, which inevitably make a road project a gigantic project in size. To solve this problem, it must be considered to pass over the right to collect toll for the existing road or to privatize the road.

In this regard, the ongoing road projects in Korea have many problems related to size. For example, the total private investment of the Inchon International Airport Freeway is over 1,700 billion won. If any problems arise during the construction period or operating period, there might be some bankruptcies of sponsors of that project.

1.2.3 Environmental Problem

If environmental risk is high or solving that problem is costly, it is not suitable for PPI. Today, In Korea, the interests for environmental affairs are increasing sharply, which prevents government and project companies from executing projects that may damage the environment or impose a heavy burden on the implementing entity to reduce the damage to a minimum. Therefore, if marketability is reduced due to high environmental costs, the project had better be executed by the government.

1.3 Criteria for Role Allocation

Basically, if the project company achieves its economic and contractual objective, it should be assured of getting a high profit. To induce private

investment in infrastructure, providing a high return is the best policy.

Related to ROIC, there are two fundamental questions.

First, it is the allocation and distribution of risk.

Too high expectation for PPI will make it difficult to allocate risks among participants. Usually, governments want to transfer all the risks to the private sector until the transfer of projects. In some cases, governments neglect or underestimate risks, which makes governments take all the risks. To allocate risks properly among participants, it is needed to do a thorough and substantial evaluation of the related risks.

In principle, the private sponsors will agree to bear risks that are familiar to them. However, the sponsors will hesitate to agree to bear uninsurable and uncontrollable risks. Therefore, the government should accept some political risks and uninsurable force majeure risks.

Proper risk allocation among participants will increase the attractiveness of the project.

Second, it is the determination of the proper level of profit for risk taking.

Obviously, the private sector will not participate in projects which have high risk and low return. One of the solutions to the above mentioned problem is to set a ceiling on the rate of profit, and the excess of profits

will be distributed among participants according to a pre-determined formula. In this case, the public sector can also gain profit through the success of the project.

1.3.1 Basic Principle

There are three important considerations when designing the risk allocation and management structure in a BOT project.

First, risk allocation scheme is directly related to the cost of the project. Considering the efficiency and the cost, a particular risk should be borne by the party most suited to manage it. That allocation can assure the reduction of cost.

Second, since the solution to the risk management does not in principle depend on unconditional guarantees from any one party alone, the financing structure must meet the following requirements.

- ☐ All important project risks should be identified, allocated and managed.
- ☐ The project risks should be managed by a combination of financial resources and firm contractual commitments.

Third, the risk structure should be sufficiently sound to overcome the worst scenario for the project.

1.3.2 The Contractual Structure for Risk Allocation and Risk Management

The basic risk allocation is defined in the concession agreement. With the concession agreement in hand, the project company will proceed to sign a series of contracts with other project participants, and again in these contracts the risks will be allocated among the participants. The set of contracts relevant for risk allocation are as follows.

- ☐ The shareholders' agreement
- ☐ Various credit agreements with projects lenders
- ☐ The construction contract
- ☐ Equipment supply contracts
- ☐ The fuel and long-term materials supply contracts
- ☐ The unconditional off-take contract
- ☐ The operation and maintenance contract

1.3.3 Risks Borne by the Government

Even though the government will try to transfer most risks related to the development, construction, management and operation of a BOT project to the project company, the government may bear or share BOT risks through supporting guarantees, stand-by loan arrangements or compensation provisions, including such assurances as follows.

- ☐ Certain minimum level of project revenue.
- ☐ Certain supplies of raw materials at certain prices, thus helping to ensure predictability of project costs.
- ☐ Foreign exchange will be available for conversion of project revenues

to repay offshore loans and to repatriate the dividends of foreign investors.

- ☐ To avoid exchange risks, conversion into foreign exchange will be done at certain predetermined exchange rates.

1.3.4 Risks Borne by the Project Company

Governments and financing institutions will seek comfort in the sponsors' experience, ability to undertake such projects, and ability to bear risks. The following risks are undertaken by the project sponsors through the project company.

1) Construction and completion risks

It includes responsibility for all project developments costs, construction cost overruns and the cost of delays. Sponsors will guarantee the following:

- ☐ Provide completion guarantees, including additional sponsors' funds
- ☐ Make certain minimum level of equity investment
- ☐ Provide loan repayment guarantees during construction or some other specified period of time
- ☐ Maintain certain minimum debt-equity and debt service coverage ratios
- ☐ Sign fixed price turnkey contracts including completion and performance guarantees
- ☐ Arrange for proper insurance

2) Operating risks

The risks of a failure to operate or maintain the project are to be borne by the sponsors. The sponsors may manage these risks by transferring a part of them to the O&M operator of the project in the O&M agreement. The project agreement requires that the sponsors cover insurable operating risks through an insurance package, including insurance of loss and damage to the project facilities and liability insurance. To ensure that the project operator is performing satisfactorily, its performance is monitored and measured(e.g. quality and quantity of output).

3) Supply risks

The sponsors usually enter into contracts to secure long-term supplies of basic inputs of the appropriate quality and at stable prices. In case the above mentioned contracts are not available, the lenders ask the sponsors providing additional equity investment as the security for the loan obligation.

4) Currency and interest rate risks

Currency and interest rate risks are hedged and managed through such contracts as swaps, options and futures. But, in case the hedging instruments can not be obtained in the market, the risks are beyond the investors' control in principle.

1.4 Importance of the Concession Agreement

1.4.1 The Concepts of the Concession Agreement

The full process for a PPI project in Korea is as follows.

(1) Announcement of basic plan for facilities project → (2) Submission of proposal → (3) Evaluation → (4) Selection of preferred negotiation partners → (5) Negotiations → (6) Appointment of the concession company and signing of the concession agreement → (7) Starting the construction work→ (8) Confirmation of completion → (9) Notice and adjustment of user fee → (10) Report and inspection on operating and management → (11) Transfer of project

These consecutive processes are divided into two main categories; one is appointment of the concession company and the other is executing the project. The concession agreement is the criterion of implementing the project. Therefore, the concession agreement is the core of PPI, and that will include the right and obligation of parties involved throughout all the steps of the project. Needless to say, the concession agreement is based on the precedent documents such as the content of basic plan for facilities project, proposals of project plan, and the results of negotiations between the government and the concession company.

Since concession agreements have become the main legal instrument for the agreement of BOT projects, most countries which promulgated special law for BOT projects have detailed regulations to control them. Moreover, some of those countries have made standardized agreements for

each sector.

Even though the Korean act and its enforcement decree had no clause related to the concession agreement, some basic plan for facilities project had a clause that the important things will be discussed in a separate agreement. Up to now, It has been a practice that the contracts containing all the results of negotiation were signed between the head of competent authority and the representative of the project company. Recognizing this problem, the revised "Private Investment Act" in December 1998 provided the ground for the concession agreement.

1.4.2 The Main Functions

1) The Basic Contract

The concession agreement is the basic contract between the government and the project company authorizing the project company to construct and operate the project. It is the main legal documents which control and coordinate related agreements and documents.

The main contents are divided into two categories. One is the performance standards to be met by the project company in the construction, operation and maintenance of the project. The other is that it identifies the risks associated with the project and allocates them between the government and the project company.

It stipulates general right and obligation of both parties and also the

specific right and obligation of both parties on particular step and the tariffs and terms of payment under various conditions. It specifies the support to be provided by the government, the supervision mechanism required by the government and the actions to be taken if certain eventualities occur during the life of the project.

In Korea, the concession agreement which is the basic contract for PPI stipulates right and obligation of both parties for the performance of projects, but it does not stipulate clearly the performance standards and the contents of government support. It is not clear that the relation among the basic plan, concession agreement and execution plan.

2) Providing Motivation for the Participation of Third Parties

Legally, the concession agreement is a contract between the government and the project company. Yet, since the performance of third parties such as financiers, constructors, suppliers, purchasers and O&M companies and the allocation of risks among the various actors are essential for the implementation of any BOT project, their concerns will have to be met in the concession agreement as well. First and foremost, the concession agreement has to provide for the financial, commercial and security terms needed to make the project capable of being financed.

In the case of Korea, there is little consideration for financiers on the ground that financiers are not direct partners in signing the concession agreement.

3) The tool for coordinating and integrating the various packages for a BOT project

The implementation of a BOT project is a combination of financial, construction and operation contract. Even though the concession agreement should contain certain incentives to induce various participants, the various contracts should not conflict with one another but should be closely related.

In the case of Korea, there is no consideration for the needs of various contracts. It seems that the Korean government believes the project company has all the power to solve every problem, but this can not be true. It must keep in mind that a termination of the signed contract package or a failure to agree to sign a critical contract will be fatal to the success of the project.

1.4.3 The Criteria of the Concession Agreement

The content of the concession agreements are different with regard to nations, and particular projects. The concession agreements have changed somewhat in accordance with new experiences, the involvement of new infrastructure sectors, and market positions of the countries adopting BOT schemes.

On the whole, however, there is less variety in the content of concession agreements than might be expected.

Usually, since infrastructure projects last more than 30 years, the concession agreements for those projects should be prepared for the long-term. Therefore it should be stated clearly and sometimes it can supplement the deficiency of related laws.

Before drawing up a concession agreement, the main addressees for the agreement should be identified. Basically, most concession agreements are first and foremost addressed to project managers, financiers of the projects and officials supervising the implementation of the projects.

Therefore, it should be a management tool that can help the related parties to do their jobs smoothly in the various performance stages of those projects such as financing, construction and operation.

For this purpose, the concession agreement should be stated precisely and verifiably. Ambiguous expressions must not be used in that agreement.

By using generally used contents in the concession agreement, time and expenses can be saved. Related to this issue, I will introduce the global practice surveyed by UNIDO at the following 1.4.4.

1.4.4 The Structure of the Concession Agreement

[1] The basic terms of the concession

① The parties, recitals and definitions

□ The parties to the agreement and the capacity
□ Project background and circumstances
□ The definition of terms(showing the relation with the related laws and previous contracts)

② Granting the concession

□ The fundamental rights and obligations both of the government and of the project company

It provides a clear-cut background for the understanding and interpretation of other provisions

③ Conditions precedent

Often, a number of events must take place before a concession agreement can become effective. These are called conditions precedent. They may include the following:

□ The evidence that both parties are properly organized and authorized to contract.
□ Necessary permits and licenses have been obtained.
□ Financing is in place
□ All other conditions necessary to start construction have been properly satisfied or waived.

[Ⅱ] Implementation of the project

① Construction of project facilities

(a) Land acquisition and use

☐ Acquisition of the project site and the necessary right-of-way.
☐ Allocation of the cost for the acquisition.
☐ Project company's rights to own or use the land.
☐ Clearance of the site.

Normally the government is in the better position to acquire the site in the public interest at a fair price, which would be beneficial from both the cost and time standpoints. Therefore project site is usually provided by the government. Whether the project company should own or lease the land required for the project may be of some importance for the lenders' security arrangements.

(b) Design

☐ Design and specification criteria to be followed
☐ The parties' rights to review and approve the design and design criteria.
☐ Procedures for review, change and approval of designs.
☐ Accountability for deficiencies in the design of the project.

The basis for the design is included in the basic plan for facilities project, the more detailed design drawings are submitted with the project company's bid and additional drawings are necessary to complete the project. The government will reserve the right to review and approve the

design drawings.

(c) Constructions

The concession agreement should place full responsibility for construction cost, schedule and completion with the project company. However, for the purpose of increasing profitability of the project, the government can provide a part of construction expenses or a subsidy.

- ☐ Obtainment of approvals and licenses required for the performance of the construction work.
- ☐ Selection and approval of construction contractors and subcontractors.
- ☐ Supply of equipment and materials.
- ☐ Definition of the quality system for quality assurance.
- ☐ Content and timing of construction progress reports.
- ☐ Government rights to access for inspection and testing.
- ☐ Clearance of the site on completion of construction work.

It may be a good idea to provide in the concession agreement for design changes to meet the evolving requirements of the construction process. Further, it should be accepted that in case of a dispute the construction must be continued.

(d) Testing and acceptance of construction

- ☐ Notice of testing
- ☐ Joint inspections and tests.
- ☐ Issue of certificate of completion.

□ Deemed certificate of completion

□ Responsibility of the parties

If the performance test discloses minor defects that are impractical or unreasonable to require the project company to remedy by repair or re-delivery, the project agreement may provide for the lack of conformity to be remedied by tariff reductions or by a claim for compensation.

(e) Delay in completion

□ Penalties for delays

□ the performance bond

If the delayed completion is due to acts or omissions of the government in contravention of its obligation, it is compensated by extending the concession period or paying principal and interests under the financing documents as of the agreed completion date. Meanwhile, in case of early completion, a bonus may be given to the project company.

② Operation and maintenance

Poor or inefficient operation and maintenance of the project facility can cause the performance of the project and the revenue generated by it to fall below projected levels, which may bring about an unfavorable result. The project company can, to some extent, mitigate this risk by entering into a long-term O&M contract with an experienced operator.

□ Operation parameters.

- ☐ Maintenance and repair standards or targets
- ☐ Schedule and substance of periodical overhauls of the project facility and monitoring
- ☐ Toll formulas and adjustment of the formulas.
- ☐ Operation and maintenance bond.
- ☐ The government's right to carry out the maintenance and repair.
- ☐ Services to users of the project facility.

To attain high operation and maintenance standards and sustain a high quality of service to the users, it is advisable to set performance standards or output targets rather than to demand particular operation, maintenance and service programs or methods in a concession agreement. The government may also consider payment mechanisms encouraging improvements in the quality of service.

③ Financial management

The way in which expenses and revenues are to be incurred, recorded and disbursed should be precisely specified in a concession agreement. For example, in a toll road BOT project, such provisions may include the following:

- ☐ The toll structure.
- ☐ Toll collection
- ☐ Method of toll adjustment
- ☐ Currency protection for a variety of currency risks, including convertibility, availability of foreign exchange, devaluation and repatriation.

□ Consent to escrow account.

□ Financial statements.

□ Government's rights in the event of project company's default under the financing documents.

The pricing structure in a BOT project should not only reflect the risk transferred to the project company, it should also, as far as possible, provide an incentive for the project company to operate the project well.

④ Transfer

[Ⅲ] General obligations

① General obligations of the government

The general obligations of the government should include essential provisions on the protection of the project company against the consequences of changes in the laws and regulations of the host country that would adversely and materially affect the project company. For the latter issue, the government should streamline the bureaucratic process associated with the project's implementation. It also provides supports for maintaining profitability and recovering from force majeure.

□ Import and export permissions.

□ Tax and duty incentives.

□ Employment permits

□ Access to public utilities.

☐ Performance guarantees for public sector entities

☐ Protection from competition and protection of the expected revenues.

② General obligations of the project company

The most essential obligation of the project company is that it must comply with the laws and regulations of the host country and it must preserve the circumstances during implementation of the project.

☐ Compliance with safety standards.

☐ Obtainment and renewal of approvals and permits.

☐ Use of competitive national constructors, services and goods.

☐ Protection of labor rights.

☐ Employment and training of national personnel.

☐ Technology transfer.

☐ Project company's responsibility for subcontractors and their employees.

☐ Project insurance to be obtained.

If the project is to be connected to existing infrastructure, the concession agreement may require that the project company minimize disruption to users during construction and maintenance. Afterwards, the maintenance and overhaul routines of all connected facilities must be coordinated.

③ Common obligations for the government and the project company

☐ Rights to project documents, including ownership of design and

drawings.

□ Confidentiality.

□ Obligations to cooperate.

[Ⅳ] Breach of contract and other failures to perform

Infrastructure projects usually involve vast sums of money at every stage of project implementation; moreover, the non or limited recourse nature of financing for BOT projects makes the investors particularly vulnerable to defects, delays or other failures to build and operate the project. It is therefore advisable to prepare and agree upon precise stipulations in the concession agreement defining the obligations to be performed and the consequences of a failure to perform those obligations.

Related to the above mentioned problems, it should deal with some of the remedies that may be available under the contract to the government or the project company if the other party fails to perform its obligations under the concession agreement or under the law applicable to the concession agreement. For example, it entitles the relevant lenders to exercise the rights of the project company under the concession agreement. It will also be included in the concession agreement that the government shall be given the opportunity to cure default by the project company.

① Contract termination

When the government or the project company is in substantial breach of the contract or where the contract cannot be performed for a substantial

period for reasons of force majeure, the concession agreement is terminated. Provisions on lump sum payments to be made to the project company in case of termination of the contract are usually found together with the provisions giving the right to terminate the contract. The level of payment will depend on the reason for the termination. In case of termination of the concession, it is natural that the operating right of project facility be transferred to the government.

- ☐ The government's right to terminate the concession agreement.
- ☐ The project company's right to terminate the concession agreement.
- ☐ Termination notice.
- ☐ Rights and obligations of the parties upon termination.
- ☐ Compensation payments.
- ☐ Notice to lenders.
- ☐ Rights of lenders.

With regard to the compensation payment, the payment to be made to the project company in case of buy-out may be stipulated to the same amount as that payable on a termination for breach of contract by the government.

② Liability for breach of contract

Provisions on liability for breach of contract usually supplement compensation by the liquidated damage specified in the delay and penalty clauses of the concession agreement, in the sense that they compensate for

losses caused by failures not specifically covered by liquidated damages and penalty clauses.

- ☐ Terms and conditions for compensation.
- ☐ Exemptions from the obligation to pay compensation.
- ☐ Duty to mitigate the loss.
- ☐ Currency

③ Liability for personnel injury and damage to the property of third persons

The construction and operation of infrastructure projects may result in personal injury to employees or users of the project facilities and other third parties or in damage to their property. The government and the project company may, however, wish to provide for an internal and final allocation for such liability risks between them in the concession agreement. The parties can be immune from those liabilities by buying relevant insurance.

[V] Assignments and public sector changes

A concession agreement should ensure that a party could not assign the contract or any essential part of it without consent from the other party. Project company and their financiers may be concerned that the public entity with which they are dealing could be privatized, restructured or dissolved or that it might undergo some other major change of statue during the concession period. In that case the project company may wish

to include adequate assignment provisions in the concession agreement and assurances from the government that a new or surviving entity will become fully liable to perform the contracting entity's obligations.

[Ⅵ] Miscellaneous provisions

☐ Formal language
☐ Resolution of disputes
☐ Governing law

[Ⅶ] Appendices

☐ Project description and specification.
☐ Necessary licenses, permits and approvals.
☐ Description of land and rights of way for the project.
☐ Preliminary design criteria.
☐ Procedures for design changes.
☐ Procedures for the government to request design changes and additional work.
☐ Environmental impact assessment and environmental performance reporting system.
☐ Quality control system.
☐ Programme and procedures for testing.
☐ Operation and maintenance criteria.
☐ Tariff rates and tariff revision formula
☐ Specifications for tariff collection system.
☐ Training programme.

☐ List of initial shareholders.

☐ Insurance.

☐ List of pre-approved contracts.

☐ Rights and obligations of the parties upon termination.

☐ Form of bonds.

☐ Overseeing and monitoring rights of the government.

☐ Form of legal opinion of counsel for the project company.

☐ Form of legal opinion of counsel for the government.

The technical specifications, financial instruments or legal matters may have been set out in more detail in the appendices than in the main body of the agreement, making the appendices equally important.

2. Facilitating Fund Raising

2.1 Direction

If the PPI system of Korea is suitable for international standards, even though there are some restrictions on domestic financial institutions in providing fund into infrastructure projects, the project company can raise the needed fund for conducting the project through loan or capital market both at home and abroad. Raising fund by public offering is not possible since the project company can not satisfy the requirements for public offering. However, it is possible to raise fund by selling stocks to the financial institutions or Infra funds privately.

Since the liberalization of foreign capital and commencement of Infra

fund will compel the domestic financial institutions to begin the needed reforms, classification of financing sources according to the origin is meaningless. Restrictions imposed on the domestic financial institutions by the Korean financial supervisory commission will act for the benefit of foreign financial institutions, therefore, the restrictions should be abolished in due course.

2.2 Funding Sources

2.2.1 International Financial Market

1) Commercial bank loans

Since commercial banks have the ability to understand and appraise the credit risk exposures involved in project finance by employing engineering staffs and financial experts, they are the most popular and largest source of project financing.

They may be in the form of construction loans, term loans, bridge loans, mortgage loans or working capital loans. Commercial banks tend to limit their commitments to 5 to 10 years with floating interest rates based on Libor or the US prime rate. Sometimes, fixed interest rate loans for 5 to 10-year maturity are available.

Commercial bank loans and standby facilities are typically arranged on a syndicated basis by a group of banks. The advantages of a syndicated loan are (1) massive capital raising (2) capital raising in multiple currency (3) many financial participants who can understand the characteristic of the

project (4) drawdown just in time (5) early repayment is allowed.

The disadvantages of a syndicated loan are (1) floating interest rate (2) front end fees are high (3) the borrower pays various fees such as commitment fee, management fee and agent fee (4) the borrower provides security packages for the lenders.

2) Supplier's financing

Companies supplying goods and equipments to a project are an excellent source of funds for project finance since they provide secured and unsecured term loans and installment loans and leases. Most manufacturers of large items of capital equipment have set up captive financing companies.

3) Export credit financing

Since most countries provide export credit financing with low rate and long maturity in order to supply capital equipments for projects, it can be especially attractive for eligible projects. In the case of US Eximbank, it will finance or guarantee up to 100% of US content of capital goods or equipment where up to 50% of the value of the finished project constitutes foreign content, provided final assembly is in the United States.

Commercial banks and investment banks with experience in export credit financing, large suppliers and contractors can be helpful in selecting and negotiating favorable terms and conditions.

4) Buyer credits

A buyer credit is that an export credit agency provides guarantees to the buyer's commercial banks, which advance funds toward purchases of equipment to be financed.

5) Development bank loans

Long term fixed rate loans at attractive rates may be available for certain projects from national and international development banks. The difficulties with this loan are that the lengthy approval process, especially in the case of international development bank's loan and currency mismatch due to difficulty to hedge. Procedural requirements such as competitive bids for construction contracts and equipment purchases are another drawback.

6) Co-finance

In the case of gigantic project which requires large-scale funding, co-financing is used in connection with international development bank loans and World bank loans. Since the borrower and the host country for the project will be less inclined to permit the international development bank loan to be defaulted, the co-finance loan scheme is made using the idea that a default on the private sector loan will also constitute a default on the international agency loan.

7) Bond financing

① Bond structure

(1) Floating rate notes

A floating rate note is a security with a coupon rate that changes based on some reference interest rate. 1 to 6 month LIBOR or LIBID is usually used for the basic rate. Many issues have either a minimum coupon rate(or floor) or a maximum coupon rate(or cap).

(2) Zero coupon bonds

Instead of providing no coupon to bondholders, zero coupon bonds are sold at discounted rate. Even though the issuer does not pay interest annually to bondholders, the real fund which is raised at the time of issuing is smaller than that of nominal value of bond. Investors can realize interest at the maturity date, and find zero coupon bonds attractive during periods of declining interest rates because a zero coupon issue locks in yield for the investor. The favorable tax treatment for capital gain especially makes the zero coupon bonds popular in Japan, U.K. and Germany.

(3) Deferred coupon bonds

Deferred coupon bonds postpone the payment of interest to some date prior to maturity. For example, a Eurodollar $40 million five-year deferred coupon bond with a coupon rate of 7% may have the following structure. No coupon payments for year one, two and three; $11.2 million($2.8 million times 4) in year 4; and $2.8 million in year 5. The

deferred coupon structure is tax motivated. By selling this bond before interest payments, since the accrued interest is regarded as capital gains, the seller can benefit through the favorable tax treatment.

(4) Convertible bonds

A convertible bond grants the bondholder the right to convert the bond to a predetermined number of shares of common stock of the issuer. Once the conversion right is executed, the convertible bond is turned into common stock without infusion of new capital into the company.

(5) Bonds with warrants

An equity warrant permits the warrant owner to buy the issuer's common stock at a specified price for the specified period.

(6) Dual-currency bonds

Some fixed rate coupon issues pay coupon interest in one currency and pay the principal in a different currency. For example, the coupon payments can be made annually in Swiss francs while the principal can be paid at maturity in US dollars.

(7) Industrial revenue bonds

Industrial revenue bonds are issued in connection with the development or operation of industrial facilities. Since this bond is issued with the cooperation of local authority or central government, state real estate or

property tax is reduced or eliminated, which makes this bond popular in the US.

The structure of this bond is as follows: First, the local authority issues bond as a nominal borrower. Second, the fund will be given to the project company. Finally, the project company will pay back the principal and interests by the expected cash flow in the future. The role of local authority is just a pass way of fund, therefore it will not be responsible for the repayment of the fund.(It will be clearly stipulated in the loan agreement) The conditions and terms of the bond is determined by the credit rating of the project company.

② Eurobond Market

The distinguishing features of the Eurobond are that (1) they are underwritten by an international syndicate, (2) they are offered simultaneously to investors in a number of countries, (3) they are issued outside the jurisdiction of any single country, (4) they are in unregistered form. The maturity of Eurobonds typically ranges from 5 to 10 years. Interest is payable annually at a fixed rate or floating rate, and is paid free and clear of withholding taxes. Investors are protected by call option of three to four years, and some premium may be charged in the event of a call. Many international banks and individual investors are attracted to Eurobond investments because of the obvious tax advantages. There are few default clauses other than for non-payment of principal or interest.

The advantages of Eurobond market are:

(1) The potential for lower cost funding with the use of swaps
(2) Access to a large diversified group of individual lenders
(3) Rapid access to the market to take advantage of current market conditions
(4) No registration requirements.
(5) Loans may be made in any of several currencies.
(6) The possibility of fixed rate financing.
(7) More choice of maturity.

The disadvantages of Eurobond market are:
(1) Funds available are limited
(2) Draw-downs are less flexible than in a syndicated loan
(3) Well-known creditors or guarantors is required

③ US bond market

In the case of mobilizing fund in the United States for project finance, it is very hard to access the public debt market because it requires compliance with the federal and state security laws, which raises special problems for most project finance. Registration and rating of such debt will make access to public debt markets very difficult for most projects.

④ Private Placement Debt

Private placements differ from public offerings in that private placements do not require regulatory approval and public disclosure and are arranged with a limited number of institutional investors.

The private placement market has several advantages as follows.

1) Do not require registration under the security laws.
2) Adjustment of time with good market condition by issuer
3) Set up price of private placement with reference to the pricing of public offering
4) Buyers in private placement with good understanding of project financing
5) A good way to establish useful long-term investor relationships which borrower can call on for future financing.
6) No public disclosure
7) Alternative maturity
8) Inexpensive placement cost

A disadvantage of the private placement market is that interest rate is higher than that of public offering and existence of limited institutional investors.

2.2.2 Infrastructure Fund

A few Infra Funds located in Asian zone such as AIG Fund and AIDEC Fund recently have shown their interests in participation of equity to Korean infrastructure project. Furthermore, major domestic and foreign financial institutions, which include KDB and IFC, have been preparing the establishment of new fund to invest in Korean infrastructure projects. Thus, these funds are expected to play a catalytic role to promote domestic and foreign private investment in this sector through transparency and structuring based on the global standards.

2.3 Necessity of Deregulation

2.3.1 Classification of Conglomerate

The project company, which exists during the concession period as a SPV, borrow the needed money, manage the project according to the contract with the government, and, then is transferred to the government. The lender will control the fund according to the contract during the loan maturity. And the use of fund will be limited within the related clauses of the loan agreement.

Besides, if we take into account the characteristics and volume of the project, the best project structure will be the one where a few or one credible company becomes the developer and under the responsibility of that company, the construction company, equipment provider and operating company are selected through the bidding process. This is the best way to control the conflict of interests among the shareholders and minimize the project cost.

Although this way has been adopted in many countries, in Korea, this way is impossible because the government imposes some restrictions. If conglomerate gets over 30% of total share in a project company, the project company is classified as a conglomerate, is forbidden to get guarantee from its shareholder, should maintain debt to equity ratio up to 200%, and should make a combined financial statement.

It is very difficult to finance the project without guarantee of the sponsor in SOC project, because of the inevitable deficit during the construction period and the initial operating period.

Considering that the equity to total cost ratio is within 25% in most projects, the debt to equity requirement of 200% is very hard to maintain.

The initial inevitable deficit affects negatively on the other company through the conglomerate's combined financial statement.

Therefore, the project company should be treated as an exception in the case of classifying the conglomerate.

2.3.2 Classification of Loan Soundness

If the project company makes a continuous 3 year deficit, the loan will be classified as a "precautious status"(one of status of bad loan) causing a disadvantage to the lender. The lender should carefully deal with these kinds of loan, and it is one of reasons that makes the lender hesitate to enter into infrastructure financing.

2.3.3 BIS Risk Weighting Factor

The BIS risk weighting factor should be lower in the case of loan to infrastructure project because the government guarantees up to 90% of revenue and admits the Buy-out.

2.3.4 Loan Obligation Ratio to the Small and Medium Company

Up to now, Korean commercial banks were required to lend 45% to 90% of the increasing loan portion to the small-medium company, but it has been difficult to maintain this level even in a conventional loan market. To meet the guideline as mentioned above, it is very difficult for Korean commercial banks to participate in the infrastructure financing which needs huge amount because the project company cannot be classified as a small-medium company.

2.3.5 Restriction on the Sharing Stock as Collateral

According to the 'Bank Act', bank is forbidden to get stock as collateral over 20% of the total issued shares. It is essential for the bank to get all the issued shares as collateral in the infrastructure financing. Due to the restriction on the share pledge, the bank which want to have risk exposure more than 20% should limit the participation portion within 20%.

Chapter Ⅵ. Conclusion

The lack of infrastructure facilities in Korea has been an obstacle to improve the competitiveness of the country and to retain the consecutive economic growth.

Considering the demand for infrastructure facilities, the government's available resources for investment have been far short. In this situation, the private investment in infrastructure is the only way to solve the problem.

The government enacted the PPC Act in 1994 to motivate private capital inducement into the infrastructure projects. But, unfortunately, despite of government desire, the performance of private investment up to now has not been successful.

To find out the reasons for the disappointing results and to show the way to solve this discrepancy. I first examined the basic concepts related to private investment in infrastructure facilities on the basis of world practices. Second, I reviewed whether the circumstances of our system and financial market could follow the global principles. Third, to identify more clearly our current problems, I studied a real case, the Inchon International Airport Freeway project. Last, I tried to suggest solutions for improving the situation according to my research.

Basically, private investment scheme can be facilitated when it can fully reflect the characteristics of infrastructure project, the BOT concept as a

system and project finance as a financing technique.

On this point, our system and market are very poor. The general criteria of financing can not be applied, project structures are overlooking the characteristics of the infrastructure business, and funding sources are limited.

Fundamentally, private capital means private financing. Therefore, the disappointing results are mainly caused by the depressed infrastructure financing. To facilitate infrastructure financing, it is required to establish the private investment system based on the global standard and the matured financial market.

To introduce global standard and practices, the following characteristics of infrastructure financing need to be understood : i) stability, profitability and liquidity of financing ii) financial characteristics, limited marketability and multi-party involvement iii) complex structure iv) various forms of financing v) criteria at each phase of BOT vi) project evaluation and risk management and so on.

This global standard requires transparency of project structure, fairness of risk distribution and financial viability.

However, our government lacks a basic understanding of infrastructure financing, which was pointed out by the World Bank and KRIHS. Therefore, the private investment system can not work for private capital inducement in infrastructure project.

Recently, the Korean government identified the above mentioned problems, and launched a restructuring of the system. However, they failed to follow-up on the initial direction due to their insufficient willingness and their attitude to escape from responsibility.

Although the financial market has been depressed after the IMF crisis, we should be eager to induce advanced financing skills to compete with foreign financial institutions. Now, there is no barriers to the free flow of capital.

Thus, the financial market is expected to meet the requirements for activating private investment soon, if the system supports it appropriately.

If we fail to prepare ourselves to meet the global financial standard, we will be confronted with a second IMF crisis.

On the contrary, if we succeed in establishing a workable system based on global standard, we will be able to improve our competitiveness, sustain the economic growth and upgrade our financial and capital market.

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