

# PPI (PRIVATE PARTICIPATION IN INFRASTRUCTURE) STATUS OF SOC (SOCIAL OVERHEAD CAPITALS) AND ITS IMPROVEMENT IN KOREA

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**ABSTRACT :** The infrastructure in Korea has been improved drastically since July 7th, 1970 which was the first highway completed date in Korea (Seoul-Pusan). This is one of the major factors for the competitiveness of a country. Now the total length of highway in Korea is more than 2000km. However Korea is 11th in the trade volume in the world, the SOC level of Korea is around 20th at most in the world (IMD 2004). The infrastructure in Korea comparing other developed countries is far below, which gives the impact of cost of goods, even twice expensive in transporting goods through highways, railways and ports etc. Now the government budget is gradually spending more for welfare and health care side. The most of additional expense of welfare is increasing rather than SOC budget is decreasing or staying as it is as 2003. The government may think that the level of SOC is enough in point of view of preference input of budget such as welfare and health care etc. However the SOC level in Korea is far from the competitiveness of the country. The main points of this paper is to show that where Korea is in point of SOC level to go for developed country, and what to do to facilitate BOT, BTO and BTL projects. Korean government has tried to improve the practice of PPI (Private Participation of Infrastructure) with the Act on Private Capital Inducement in 1994 and the Act on Private Investment in 1997.

## 1. STATUS OF SOC IN KOREA

### 1.1 Country Competitiveness of Infrastructures of Korea

General overview of country competitiveness of Korea is stated before mentioning SOC status in Korea.

Korea's country competitiveness from 2000 to 2002 which was just after IMF was 29th, 37th in 2003 and 35th in 2004, which is 6 steps below comparing 2000. According to IMD (International Institute Management Development, Switzerland), countries ahead of Korea in the country competitiveness are Taiwan (12th), China(24th), Thailand(29th) and India(34th) in Asia(IMD 2004 yearbook). Once Korea was 26th place in 1995, which was the best country competitiveness. In the other hand, the world trade volume of Korea is 11th place as the reference.

One of main reasons to draw back the country competitiveness of Korea is analyzed as insufficient infrastructure(2004 IMD).

As shown in table 1, the overall infrastructure level of Korea is around 20th place. It was 27th place in infrastructure in 2002, 20th in road and 22nd in railroad. And road level in Korea is 28.7% of Japan.

**Table 1.** Infrastructure of Major Advanced Countries

Item	Road (km/km <sup>2</sup> )	Railroad (km/km <sup>2</sup> )	Airport (1000 people)	Port (40 point)	Electricity (Gwh/ 1000 people)
Korea	0.88 (22)	0.031(20)	31,331(8)	6.07 (28)	7.21
U.S.A	0.65 (28)	0.024(25)	663,338 (1)	8.29 (10)	13.5
Japan	3.07 (4)	0.053(17)	109,123 (2)	6.75 (22)	8.7
Germany	1.77 (8)	0.103(6)	58,661(5)	8.53 (6)	6.8
U.K	1.62 (12)	0.068(11)	70,436(3)	6.73 (23)	6.6
France	1.62 (12)	0.059(14)	51,883(6)	7.72 (15)	8.9

The shortage of infrastructure will cause the increase of transporting cost of industry and eventually weaken the competitiveness of company.

Korea is born to pay twice in transporting cost comparing major advanced countries such as U.S.A or Japan since the transporting cost of Korea is 12.5% and major other countries is 6 to 7%. For the reference, the total value of SOC was US\$388 billion in 1997 and U.\$649 billion in 2004 (Statistics Authority of Korea Table 2).

**Table 2. Overall SOC Stock**

1968		1977		1987		1997	2004
Structure		1. Public Asset	3.2194	1. Transport	26.697	215.196	303.360
Transport	0.506	Road	2.1628	Road	15.119	171.566	224.410
(Road)	(0.2619)	Port	0.1144	Rail / Road	9.859	35.919	58.240
Power	0.0451	Airport	0.0093	Port	1.376	4.140	130.70
Dam	0.1309	Water	1.0049	Airport	0.343	3.571	0.774
Others	0.0551	Public Facilities	1.3411	2. Life Convenience	18.225	72.451	102.120
		Railroad	0.7794	Power Gas	15.254	50.298	70.90
		Communication	0.2372	Municipal Facilities	2.971	22.153	31.220
		Municipal	0.3245	3. Dam	14.697	72.081	101.600
				4. Communication	10.545	28.530	40.200
Total	0.737	Total	4.6325	Total	70.164	388.258	649.4 (167%)

Unit : U.\$ billion

Data: Statistics Authority

### 1.2 Background of PPI Introduction

It may mention that in 21st century, the unlimited competitiveness is forced in the world with the centre of IT and Service Industry.

It means that the time has arrived with the country competitiveness coming from mainly IT and knowledge information with its supporting service. It is needed desperately in order to have SOC facilities such as communication, transportation and depot in order to increase the efficiency of knowledge information.

However Korea did not invest SOC in the later part of 1980, which cause the deficiency of SOC. It creates the increase of transportation cost, which causes to lower the competitiveness of country, even limit it.

Based on such background, the Korean government introduces the Act of the private capitals inducement for SOC in order to resolve the shortage of investment asset in 1994, which was the frame of the private investment inducement.

In the end of 1997, PPI was stagnant due to the crisis of foreign money and the investment of PPI was minimal due to not ready of SOC system. In order to resolve this kind of problems, the government introduced the Act of Private Investment in April 1999, by improving the Act of Private Capital inducement. By setting up the legal frame for PPI to fit with the international standard, the enhancement of the individual business's profit and variety of pursuing the projects improve better environment of PPI.

Total 158 PPI projects in July, 2005 are going on after revising the PPI Act in Korea, particularly the private proposed projects such as BOT or BTO tend to be increasing. Future vision about PPI has lately better view with keen interest of finance circles with improving the environment supplying the capitals and applying the new technique of finance method.

However, there are still many obstacles to resolve the issues in the point of supplying capitals for PPI in spite of green sign of bright view of future's PPI. It is judged that there are a few matters to resolve the conditions to satisfy the Strategic Investors(SI), but also various fund such as veterans association, school association and insurance companies including professional investment funds.

Lowering the competitiveness in transporting cost causes to lower the competitiveness of the country in international competition. The government has a limit to allocate the fiscal budget for SOC, further more, DJ government (former) and Noh government(present) of Korea try to allocate the central government budget for welfare and health care by cutting SOC budget. For example it was generally until 2000, SOC budget of central government has increased 15~20% annually. After 2002, SOC budget stay on as it is or decreasing.

For the reference, the SOC budget in 2003 was U.\$ 17 billion, U.\$ 16billion(2004), U.\$ 15 billion(2006) <Table 3>.

Korea economic growth become slow phase mechanism with the tendency of decreasing the tax income and diverting more budget to welfare and health care for SOC comparing

as it was. The most sacrificed field is road construction.

This year's budget for road is U.\$ 7.7 billion and it become decreasing U.\$ 6.6 billion in 2009. This is 12.6% decrease comparing 2005( Daily Construction News 2005.8.9) It is naturally to bring PPI capitals more for SOC and is setting up the new laws to activate more private capitals from government.

**Table 3.** Fiscal Budget for SOC

Aug 9, 2005 (Unit : U.\$ bill, %)

Item	05	06	07	08	09	Animal increase
SOC Field	16.0	15.5	15.8	16.1	17.1	1.6
Road	7.7	7.1	6.9	6.8	6.7	3.3
Railroad	2.5	2.5	2.6	2.9	3.1	5.4
Subway	1.3	1.3	1.2	1.2	0.9	7.6
Airport	0.4	0.4	0.6	0.6	0.8	18.4
Port	1.8	1.7	1.8	1.9	2.0	3.8
Water Resource	1.4	1.4	1.4	1.4	1.5	2.6
Depot etc.	1.0	1.2	1.3	1.3	1.9	19.2

In Korea, the installation, operation and maintenance of the public facilities of SOC used to be executed by the government traditionally. There may be 3 reasons why PPI was not active as follows :

First, it was dominated to be in charge by the public sector for construction, operation and maintenance of public facilities such roads, railroads and ports etc. which affect very much for external effects.

Second, the policy makers of government in Korea think that the supplying of the public facilities by private sectors does not meet the public interest because private sectors only consider the profit instead of public benefits which will create the market failure.

Third, the supplying the project capitals was not developed yet or premature to meet the infrastructure market since that there are no proper finance firms in the market in capable to recover safely the invested capitals for a long terms.

However, since 1990, PPI was actively performed in the construction and operation of SOC facilities from all over the world. There may be 3 main reasons as follows:

First, comparing the risk of market failure due to supplying of SOC facilities by private sector, there are more risk from government failure due to the shortage of public facilities, and inefficient operation of SOC.

Second, it become very difficult to satisfy the demand of SOC by the government in the process of well being, welfare country with the high burden of tax from the public.

Third, the private industries with massive capitals has the capability to execute the project with the advancement of finance technique and progress of finance market.

### 1.3 Status of PPI in Korea

Inducement in 1998 during IMF crisis in Korea was improved with 4 different directions as follows :

First, the Act must meet the international standard in terms of pursuing procedures of the project.

Second, to give the credibility and drive the competitiveness to Investors with transparent procedures.

Third, to secure the adequate investment profit and investment safety with reasonable sharing risk.

Fourth, to provide the incentive to induce the efficiency and creativity of private sectors with clear responsibility.

Since then, the legal improvement of the Act gives the active participation to SOC by private sectors. Now at the end of July, 2005 in Korea, there are total 158 PPI projects (47 projects from central government and 111 projects from local government and public authorities) .

### 1.4 Necessity of more PPI in Korea

#### 1.4.1 Outcome of PPI

As shown in Table 4, the PPI portion in 1998 was 2.32% of total SOC investment, increased to 3.8% in 2000, slightly decreased 2.2% in 2001, rapidly increased to 7.04% in 2003 and 8.55% in 2004.

Private investment for SOC excluding the local government and public corporations in 2003 was 10.4%, Private investment is now major portion of SOC in sizewise.

**Table 4.** Tendency of SOC by Investors

Unit : U.\$ million

	1998	1999	2000	2001	2002	2003	2004
Central Government	11,645 (51.03)	13,493 (51.88)	14,232 (54.90)	15,181 (57.09)	15,986 (58.25)	18,297 (60.85)	17,300 (58.73)
Public Corporation	4,242 (18.59)	5,150 (19.80)	5,416 (20.90)	4,883 (18.37)	3,484 (12.70)	3,196 (10.63)	3,152 (10.70)
Local Government	6,404 (28.06)	6,563 (25.23)	5,287 (20.40)	5,934 (22.32)	6,319 (23.03)	6,459 (21.48)	6,484 (22.02)
Private Investor	529 (2.32)	803 (3.09)	987 (3.80)	592 (2.22)	1,653 (6.02)	2,119 (7.04)	2,519 (8.55)
Total (A)	22,821	26,011	25,923	26,592	27,442	30,072	29,457

### 1.4.2 Forecasting of Government Available Capitals

As explained before, the level of SOC stock in Korea is still far below what to demand, and it is necessary to invest much more continuously for a considerable period of time.

The level of investment for infrastructure from government is keeping around 2.3% of GDP since 1997 which was the time of IMF.

Korea is still far low comparing other advanced countries as already mentioned. In order to catch up the advanced countries, more SOC investment has the common ground in the public.

However, recently the government proposed the SOC budget for next 5 years which shows that the government will induce more the private capitals for SOC as shown in page 4.

The railroad and port etc. Which is inferior to the other countries are needed more investment for a time being.. To make Korea as the economic hub of North East Asia and superior to China with the country competitiveness, it is necessary to enhance SOC level up by improving the investment environment with government support.

### 1.4.3 Necessity of more PPI in Korea

The necessity of more private investment for infrastructures was already mentioned

However, considering the financial balance of budget, the welfare and health care portion will be increasing, which will harass the SOC investment and refrain the increasing budget for SOC as much as possible.

By minimizing the wasting budget through rationalization of SOC investment system, the alternative policy to maximize the SOC investment effect shall be proceeded positively, but this can not be the effective method for the SOC's high demand.

There is other means as alternatives, which enhance the local government role, instead of using government budget supplying the capitals by public corporations, and private participation.

Among many alternatives, the private investment is judged desirable with the following 5 reasons ;

First, on the circumstance of shortage of investment capitals from the government budget, the private capitals will be one of the effective alternative.

Second, the private investment will be useful one to share of benefit and cost between generations.

Third, the risk will be shared and transferred from the government to the private sectors. For instance, the government fiscal burden will be avoided by utilizing the private capitals and also risks which comes from mismanagement of construction, operation and maintenance of SOC facilities shall be transferred to financial investors and construction firms.

Fourth, the creativity and efficiency of private sectors will be introduced and utilized for the construction and operation of SOC facilities with the management techniques of private industry.

Fifth, with the advanced financial technique, the development and capability of engineering including

feasibility study, the affirmative externalities which come from executing the projects and taking care of risk will be achieved.

## 2. IMPROVEMENT OF PPI IN SOC

This paper likes to suggest a few words to improve and activate PPI in SOC in view point of customary practices and legal aspects in order to be more competitive and efficient.

### 2.1 Customary Practice Aspect

#### 2.1.1 Leading Role of Developer in PPI

To execute PPI in Korea by the general contractors is no difference with the general construction projects from the government because so far the general construction companies pursue only the profit of construction which is normal by participating in PPI as a leader of the PPI consortium.

PPI projects shall be executed with the competitive business plan which comes from competitive cost, efficient operation and management of the project. The general contractors in Korea have the capability limit to take care of supplying financial capitals and risk management because they are not used to execute the projects with total view of business profitability.

The finance projects like PPI in SOC are not the simple solicited construction projects which the government ordered the engineering and construction.

While the contractors mainly focus on the profit coming from executing the construction, PPI in SOC is focused on the business profitability which comes from, long term operation of facilities. PPI Project is a finance project, which the profit of business will cover the cost of construction and interest of capitals for the project through the operation of SOC.

So far, PPI projects in SOC are led by the general contractor by developing the project, study, evaluation and negotiation with the authority for the profitability of construction.

There is a tendency to create over profit by construction instead of profit creating from the proper operation because the contractors generally only think of the interest of construction.

The contractors have strong know-how in construction of roads and ports.

However PPI in SOC is the investing activity through project finance which needs investing acting through business evaluation, profitability of operation to cover the all expenses of the business, and risk analysis of finance technique. The contractor have the professional construction know-how during construction period. They are not supposed to be expert to make the project. profitable with competitive technique and business operation. This is entirely depending on how and who consortiums are organized and operated with different business characters.

The professional construction management companies in Korea are just sprung up. It is needed now the professional

SOC developer which develop PPI of SOC and organize SPC (Special Purpose Company) and finance partners in Korea. The government support policy for the SOC developer is needed.

### 2.1.2 Reducing the Construction Period

Solicited projects are based on the government responsibility's plan, which is different from the unsolicited projects, which are planned by the private participation in infrastructure. These are progressed by the negotiation between the government and the private.

If the planning and feasibility study of the projects are prolonged or the negotiation between the government and the private are dragged, the progress of project will be prolonged. And based on the existing PPI, by viewing the period spent by each steps from the starting to the completion of the projects, the solicited projects takes 43~92 months as shown in Table 6 and PPI takes 36~78 months.

By spending long time at the beginning of the project, the opportunity cost will be increased. It will cost both of the government and the private sectors. In order to make smooth progress of the projects of PPI, the period wasting at the beginning and compensation of land will be shortened by solving the various private arguments with the local government's involvement.

The environment and the traffic evaluation may be executed as the project developer by PPI law in Korea during the execution plan. The private sectors have a lack of

capability to handle the various demand from the individuals and the local governments' wants various demands. As far as the environment concerned, if the individuals demand and the local government demand is over the common sense, the authority should positively assist and help to resolve the matters.

By doing this way, the total period of project may be shortened.

While the solicited projects shall be progressed by resolving the various permit and issues for a long period of time required, but for the unsolicited projects, all the matter shall be resolved by the private. In this case, there is no clear methods to resolve the individual demands and the related authority's request. These issues are simply dumped to the private sectors. Therefore, the individual and authority's demand shall be resolved by the consultation with the authority and in the other hand, the negotiation period for the various permit is set in advance to save the period of starting step.

In view of PPI practice, the negotiation stage needs long period of time. However, in order to prevent the dragging the projects, it is necessary to introduce the negotiation duration in advance. It is judged to shorten the duration of negation when the office of the Ministry of Planning and Budget starts to involve from the study stage to the negotiation stage in the committee of PPI.

**Table 5.** The Duration of PPI

Unit : month

Item	Solicited Project		Unsolicited Project	
	Stage	Term	Stage	Term
	Prefeasibility Study Investigation Submission	-	Business Plan	-
	Prefeasibility Study Investigation	6~12	Business Plan Submission	3~6
	Main Feasibility study	6~12	PICKO Review	2~4
	Designation of the project	3~12	Recognition of Business Plan	3~12
	Sub Total	15~36	Sub Total	8~22
	Notice of Basic Plan	3~6	Third Party Notice	3~6
	Submission of Business plan	3~6	Third Party Proposal Submission	3~6
	Evaluation/Preferred Concessionaire Designation	1~2	Evaluation/Designation of Preferred Concessionaire	1~2
	Negotiation/Designation of Concessionaire	6~12	Negotiation/Designation of Concessionaire	6~12
	Execution Plan/Approval Concession	6~12	Execution Plan Submission	6~12
	Approval of Execution Plan	3~6	Approval of Execution Plan	3~6
	Land Compensation	6~12	Land Compensation	6~12
	Ground Breaking	-	Ground Breaking	-
	Sub Total	28~56	Sub Total	28~56
Total		43~92		36~78

Data : Lee, Yon-Koo. "PPI of Proposition for Activation of SOC"  
「Land」 2002.7

## 2.2 Legal Aspect

### 2.2.1 PPI Act Improvement of SOC

It is needed to improve the legal aspects to bring in the financial investors with the long term utilization of capitals. It is stressed also to open up to be able to be participated by individual investors with the private fund.

And also in order to make smooth operation of the project, it is necessary to modulate the role between the participants. The legal system which can exit the program by the financial investors is needed for activation of long term PPI.

It is needed to increase the subsidy for complex facilities of local government and preferential treatment for local small and medium company.

### 2.2.2 Financial System Improvement

According to the law of bank control which does not allow to be the largest investor of SPC by the banks and insurance companies should be allowed.

According to the law of bank control which does not allow to invest more than 15% of SPC should be allowed.

The law of bank control should be revised to be able to control the SPC by banks which can not govern the subordinate company of SPC.

### 2.2.3 Tax System Improvement

#### 2.2.3.1 Specific Tax Limit ACT

All PPI projects including BTL shall not be applied by VAT when the PPI projects completed and subscribed to the country. Now only BOT and BTO projects are not applied by VAT.

It is needed to apply the total combination tax 14% for more than the profit U.\$ 300,000 and less than the profit U.\$300,000 shall be no tax.

At the beginning of construction and operation of the projects, it is not possible to collect the interest on the dividend of the capital according to the present PPI business and financial structure. This is the reason that limit the share investment and outside borrowing in supplying the finance in the PPI. Therefore it is necessary to relax the regulation of more than 25% investor's equity share. And also it needed to improve the burden of financial investor by accepting the subordinate bond and by acknowledging more than the own equity by allowing certain amount of the subordinate bond.

#### 2.2.3.2 SPC (Special Purpose Company) Corporate Tax

It is needed to relax the SPC tax deduction for the equity U.\$1million from U.\$5million.

### 2.2.4 More Flexible for other PPI from BOT, BTO to BTL

At the present system, all the BTL projects already are decided by the government, not by the private sectors.

It is necessary to decide BTL by the private sectors also with the consultation of the government.

It is believed that the government has enough studies all possible potential BTL, but afterward, other projects not nominated as BTL may be needed as BTL in short period of time. If the private investors want BOT as BTL, it is advisable to be flexible to allow as BTL since nobody is nows what to face in view point of people's convenience and health care etc., it is easily overlooked not to be nominated as BTL or circumstances may be changed very fast. Somebody may say that every year make new BTL list by the government, it is not needed to do so. However, it is better to be flexible to adopt new project as BTL instead of waiting 1 more year to be nominated as BTL. As far as budget concern, the additional budget afterward or next year budget can be allocated to do the new BTL.

## 3. CONCLUSION

This paper try to show where Korea stands in view point of SOC and country competitiveness in the world and also mention the status and improvement of PPI

In trade, Korea ranked as 11th place, and the level of SOC is at most around 20th place in the world. It may be one of major obstacles to achieve U.\$200,000 per year per capita with such low SOC level.

Since July 7,1970, which is the completion date of Pusan-Seoul highway which is the first highway in Korea, 35 years passed by completion of 2000Km highway. This is 22nd place in highway in the world, contrary to 11th place in trade in the world. Comparing Japan highway, Korea is 28%, The expenses of transportation of Korea is 12% of total cost of goods which is twice of other advanced countries' cost(6%). It will cause inferiority of competition in international market.

The country competitiveness composes of 2 factors such as software which comes from know-how and information intelligence(IT) and hardware which comes from manufacturing industry. Software such as IT industry and country management system which comes from the brain and Hardware coming from the manufacturing result in the country's competitiveness with the infrastructure.

The level of SOC of each country impacts the country competitiveness. If the SOC level is inferior to the other competitors, the competitiveness of the country will go lower. This is the reason why the infrastructure of the country is needed.

So far Korean government solely is responsible to construct the infrastructures by the financial budget. The budget is now needed more for the welfare and health care of the country which refrain to use the budget for SOC. Now PPI is needed for SOC in Korea. In 1994, the Act of private asset inducement was introduced and in 1997, the Act of private asset investment for PPI was stipulated to activate more SOC. However, there are still to improve the legal and customary points.

This paper may contribute to activate more PPI in Korea as one of SOC man.

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