

PRIVATE PARTICIPATION IN THE INFRASTRUCTURE PROGRAMME OF THE REPUBLIC OF KOREA

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ABSTRACT

The Private Participation in Infrastructure (PPI) programme of the Republic of Korea was formally launched in 1994. The limited success of the initial efforts and budgetary constraints after the Asian financial crisis of 1997 prompted the Government to take new initiatives in this area. A new PPI law was adopted in 1998, establishing the Private Infrastructure Investment Center of Korea in 1999. The Center acts as a special arm of the Government for the promotion of private sector participation in infrastructure sectors. These initiatives, along with other major reforms in the economy, have helped the renewed PPI programme to make tremendous progress. By March 2003, 130 projects were being implemented. Contracts involving \$ 13 billion of domestic and foreign capital have been awarded. Against this background, this paper provides an overview of the Republic of Korea's PPI programme, its history, successes and failures, and unique features.

INTRODUCTION

For the last few decades and especially during the 1970s and 1980s, the Republic of Korea achieved outstanding economic development. Provision of adequate infrastructure facilities was one of the main policies of the Government to help the economy to grow and the results were impressive. In 1994, the Government launched a new Private Participation in Infrastructure (PPI) programme to promote private sector participation in infrastructure development. The PPI

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programme aimed at delivering infrastructure facilities by the private sector in order to reduce the burden on the public budget as well as to exploit the efficiency and creativity of the private sector.

The PPI programme of 1994, however, was not particularly successful in attracting private participation in infrastructure sectors for various reasons. The financial crisis of the late 1990s compounded the problem by imposing severe constraints on the Government in making budgetary allocations to the infrastructure sectors. Faced with this situation, the Government took new initiatives to promote private participation. In 1999, a new PPI programme was launched through the enactment of a PPI Act, which, inter alia, established a special unit, the Private Infrastructure Investment Center of Korea (PICKO), charged with promoting private participation. Under the new law, various incentive packages are offered to the private sector and rules and procedures for project selection, evaluation and approval have been simplified.

These new initiatives along with other major reforms in the economy have helped the new PPI programme to make tremendous progress. Troubled and delayed infrastructure projects under the previous PPI regime were cancelled and efforts were redirected towards facilitating the implementation of more promising projects. By March 2003, 130 projects were being implemented. Foreign investors have invested, or are expected to invest, about \$ 3.5 billion. Contracts involving \$ 13 billion of domestic and foreign capital have been awarded. Against this background, this paper provides an overview of the Republic of Korea's PPI programme, its history, successes and failures, and unique features. Finally, it makes some concluding remarks about the future of the PPI programme in the country.

I. POLICIES FOR INFRASTRUCTURE DEVELOPMENT IN THE REPUBLIC OF KOREA

There have been many changes in infrastructure development policies over the past four decades in the Republic of Korea. In the early 1960s, investment in the transport sector was made mainly in railways with an emphasis on commercial lines. Between 1962 and 1966, investments in railway projects accounted for 64.2 per cent of the total investment in the transport sector. In addition to railways, large

industrial ports were also constructed to handle imported materials. However, the focus of investment in the transport sector shifted from railways to roads with the massive construction of expressways that began in the late 1960s. The two major road construction projects were the Gyeongin Expressway in 1968 and the Gyeongbu Expressway in 1970. Following these two major developments, many other expressways as well as urban railways and container ports were built throughout the 1970s.

The trend of transport infrastructure development in the 1970s continued in the 1980s. This was also a decade marked by massive development of expressways and urban railways. However, over the years the Government had changed its policies for infrastructure development and began to place greater emphasis on balanced regional development. This shift in emphasis led to lesser allocation of funds for transport infrastructure facilities, resulting in heavy congestion problems in the transport system, which in turn necessitated the mobilization of additional resources for capacity expansion.

However, in the 1990s, many national-level prestigious infrastructure projects were also launched, which included the construction of the Gyeongbu High Speed Railway, Incheon International Airport and Gadeok New Port. Although private participation in transport development began in the late 1960s, the introduction of a PPI policy in 1994 provided the first stimulus for its growth in subsequent years. It was also during this period that the importance of transport systems, including logistics and public transportation in major metropolitan areas, began to be widely recognized.

II. EVOLUTION OF PPI IN THE REPUBLIC OF KOREA

Private investment in transport infrastructure development has been sought since 1968 to meet the growing need for capacity expansion and improvement for which sufficient budget allocations were not available. As shown in table 1, by August 1994, 93 projects costing US\$ 2.7 billion were implemented with private investment. As a comprehensive legal system supporting private investment in infrastructure had not been established at this time, each project was promoted under the laws governing each sector such as the Road Act,

Harbour Act, etc. These investments, however, were of limited size, did not cover all sectors, and operation and management of these facilities by the private party that invested in their construction were not permitted.

Table 1. Private investment in infrastructure, 1968-1994

| Sector | Number of projects | Project cost (millions of dollars) |
|-----------------|--------------------|---------------------------------------|
| Roads | 6 | 106 |
| Railroads | 12 | 660 |
| Harbours | 52 | 1,232 |
| Cargo terminals | 4 | 378 |
| Airports | 16 | 256 |
| Power plants | 3 | 71 |
| Total | 93 | 2,703 |

Source: Kyubang Lee and Byung-rok Song, *New Initiatives for Private Participation in Infrastructure*, (KRIHS, 1998), p. 27.

The PPI programme was launched in 1994 with the adoption of the Promotion of Private Capital in Social Overhead Capital Investment Act. The Act aimed at facilitating PPI through the formulation of consistent government policies across all sectors and the institutionalization of clearly defined procedures to be followed for the involvement of the private sector in infrastructure development and its operation and management. Under the provisions of this Act, the central Government and various local governments in the country announced the launching of a total of 100 private infrastructure projects, 45 by the central Government and the remaining 55 by various local governments.

However, success in the first four years was far less than what was expected. Out of the 45 projects of the central Government, concessionaires were designated for only 10 projects and construction started on just 5 projects. Very little progress could be made with the rest of the projects of the central Government. However, the progress of the projects announced by local governments was much better, as can be seen from table 2. An important feature of all of these projects was that only domestic capital was invested.

**Table 2. Private infrastructure investment, 1994-1998
(number of projects)**

| | Projects under central Government | Projects under local governments | Total |
|---------------------------------|--|---|--------------|
| Construction complete | – | 6 | 6 |
| Under construction | 5 | 31 | 36 |
| In preparation for construction | 5 | 9 | 14 |
| No concessionaire designated | 35 | 9 | 44 |
| Total number of projects | 45 | 55 | 100 |

Source: Kyubang Lee, "Introduction to PPI System and PICKO", paper presented at the Seminar in Commemoration of the Establishment of PICKO, (KRIHS, 1999), p. 30.

As indicated in table 2, the ambitious PPI programme did not result in successful completion of the majority of the projects. No concessionaire could be designated for 44 projects out of the total 100 projects. Insufficient incentive measures, lack of transparency, complicated procedures, non-conformity with global standards and unsatisfactory risk-sharing mechanisms were often cited as causes of dismal performance of the programme. The Asian financial crisis of 1997 worsened the situation further. In 1998, the GDP growth rate hit an unprecedented negative rate of 6.7 per cent, inflation rose to 7.5 per cent and the interest rate reached 15.1 per cent.

The limited success of this initial effort led the Government to introduce a new PPI law for the country, which could revive the programme and address the concerns of private investors. Accordingly, the Act on Private Participation in Infrastructure was enacted in December 1998. This measure was also taken in response to the financial crisis. As tax revenues dropped significantly less resources were available. Furthermore, most of the budget was allocated to industrial and financial restructuring and growing demands for infrastructure development were ignored in an effort to revive the economy.

A comparison of the main features of the old and new PPI regimes is provided in table 3. As can be seen from the table, the new

regime provides for systematic government support, transparent bidding requirements and more incentives for the private sector. These incentives include bonus evaluation points to the initial proposer of unsolicited bids, minimum revenue guarantees, foreign exchange risk guarantees, etc. The amended PPI law also defines clear and simplified procedures to be followed for both solicited and unsolicited projects. It may be mentioned here that the old PPI law did not have any provision for unsolicited projects.

Table 3. Major changes in the new PPI law

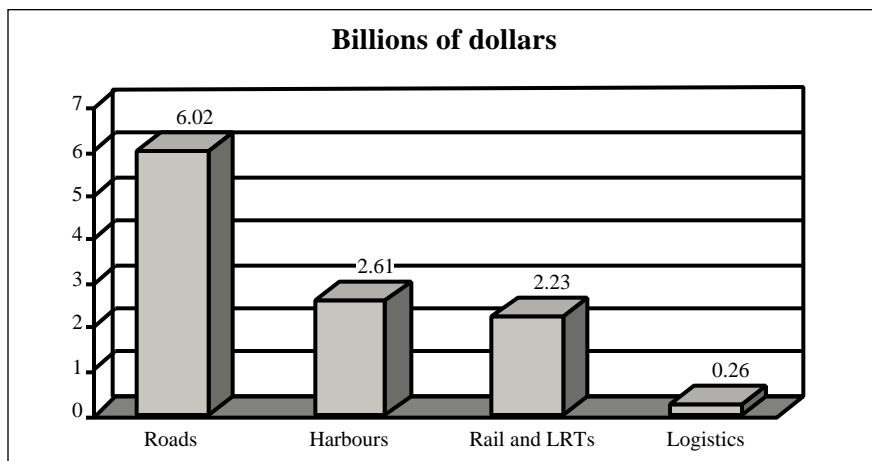
| | Previous law | New PPI law |
|-------------------|-------------------------|--|
| Concession types | BTO, BOO | Unsolicited projects: BTO, BOT, BOO Solicited projects: No limitation |
| Feasibility study | No requirement | Mandatory |
| Fiscal support | Fragmentary recognition | Systematic support system: <ul style="list-style-type: none"> – Recognition criteria for unsolicited projects set out in the decree – Minimum revenue guarantee – Foreign exchange risk guarantee – Recognition of buyout rights |
| Support agency | – | – Establishment of PICKO and the Infrastructure Investment Fund |

Source: Jungkyu Lee, “Regulations of PPI Act”, paper presented at the Workshop on Private Participation in Infrastructure, (KRIHS, 2002).

About four years have passed since the new PPI programme was launched. It seems that the renewed efforts of the Government to promote PPI in the Republic of Korea have been successful. The results to date are quite impressive. So far, in the transport sector 37 projects

have been promoted by the central Government and another 92 projects by municipal governments. A significant amount of foreign investment has been attracted; contracts worth \$ 300 million have been signed, and contracts worth another \$ 3.2 billion are expected to be signed soon. Construction of most of the projects for which a concession agreement has been signed has already started.

Contracts of over \$ 13 billion with both domestic and foreign capital have been awarded. Of these, 15 transport projects of the central Government with investments of \$ 11.1 billion accounted for the lion’s share of the total investment. Local governments have signed concession agreements for 63 projects of worth \$ 2.1 billion. Figure 1 shows the subsectoral distribution of these projects in the transport sector.



Source: PICKO.

Figure 1. Investment in contracts awarded projects by the central Government (as at November 2002)

In addition to the new projects, measures have been taken to revive projects for which concessions were granted earlier under the old PPI regime. Concessionaires designated under the previous PPI law were given a chance to renegotiate their concession agreements based on the new PPI law in order to take advantage of more favourable conditions now available. Table 4 shows some examples. In all five

projects, either a new minimum revenue guarantee was provided or the level of the previous guarantee was increased from 80 to 90 per cent. The minimum revenue guarantee provision lowers the risk borne by the concessionaire through a government guarantee of projected revenue. Almost every project renegotiated under the new PPI law had a higher internal rate of return (IRR) and some projects benefited from additional government subsidies.

Table 4. Comparison of conditions before and after renegotiation

| | IRR (real) | | Revenue guarantee (percentage) | | Government subsidy (millions of dollars) | |
|----------|------------|-------|--------------------------------|-------|--|-------|
| | Before | After | Before | After | Before | After |
| Road A | 8.89 | 9.7 | 80 | 90 | – | – |
| Road B | 6.81 | 9.24 | 80 | 90 | – | 350 |
| Port A | 7.4 | 9.5 | 80 | 90 | – | 416 |
| Tunnel A | 7.17 | 9.71 | – | 90 | – | – |
| Tunnel B | 8.06 | 9.05 | – | 90 | – | 26.8 |

Source: PICKO.

III. PRIVATE INFRASTRUCTURE INVESTMENT CENTER

PICKO is a public organization, established in April 1999 under the PPI Act. It is located within KRIHS, one of the most prestigious government research institutes, which plays a key role in territorial planning. The establishment of PICKO was designed to meet the need of both the Government and investors concerning PPI services. PICKO's efforts are directed at creating synergies between concerned government agencies and potential investors through the facilitation of PPI projects and by providing technical expertise to both the public and private sectors. Previously, government agencies suffered owing to lack of expertise and absence of standards to apply in the evaluation and negotiation of PPI projects. These deficiencies in public sector capacity caused confusion for investors, particularly foreign ones.

The main role of PICKO is to promote private investment in the Republic of Korea's infrastructure projects, evaluate the feasibility of these projects and provide training and expert services to the government

agencies and the private sector. In the case of unsolicited projects, it is the obligation of PICKO to review the initial proposal at the request of the concerned authority. This is required in order to maintain consistency in project promotion, as unsolicited projects often have a tendency to be implemented without proper study and review of their economic feasibility and desirability. Review of bidding documents, evaluation of proposals and negotiation of concession agreements are also PICKO responsibilities. Table 5 summarizes the nature of the services PICKO has provided and the number of times it has provided them.

**Table 5. Services provided and achievements of PICKO
(number of services provided)**

| Types of work | 1999 | 2000 | 2001 | 2002 | Total |
|---|------|------|------|------|-------|
| Review of instructions for proposals | 7 | 7 | 9 | 7 | 30 |
| Review of unsolicited proposals | 5 | 23 | 19 | 22 | 69 |
| Evaluation of proposals | 1 | 2 | 8 | 7 | 18 |
| Negotiation for or review of concession agreements | 3 | 32 | 23 | 25 | 83 |
| Review of feasibility studies, project selection and others | 4 | 8 | 10 | 0 | 22 |
| Total | 20 | 72 | 69 | 61 | 222 |

Source: PICKO, 2002 Annual Report, (KRIHS, 2003), p. 9.

Another important function of PICKO is to assist the Government in formulating policies related to PPI. This is carried out through various research activities, as well as advisory services to the Government. PICKO also serves as the gateway to the country's PPI market for foreign investors. Since its establishment in 1999, PICKO has regularly organized road shows in various financial centres of the world such as New York, Tokyo, Paris, Sydney and Hong Kong, China.

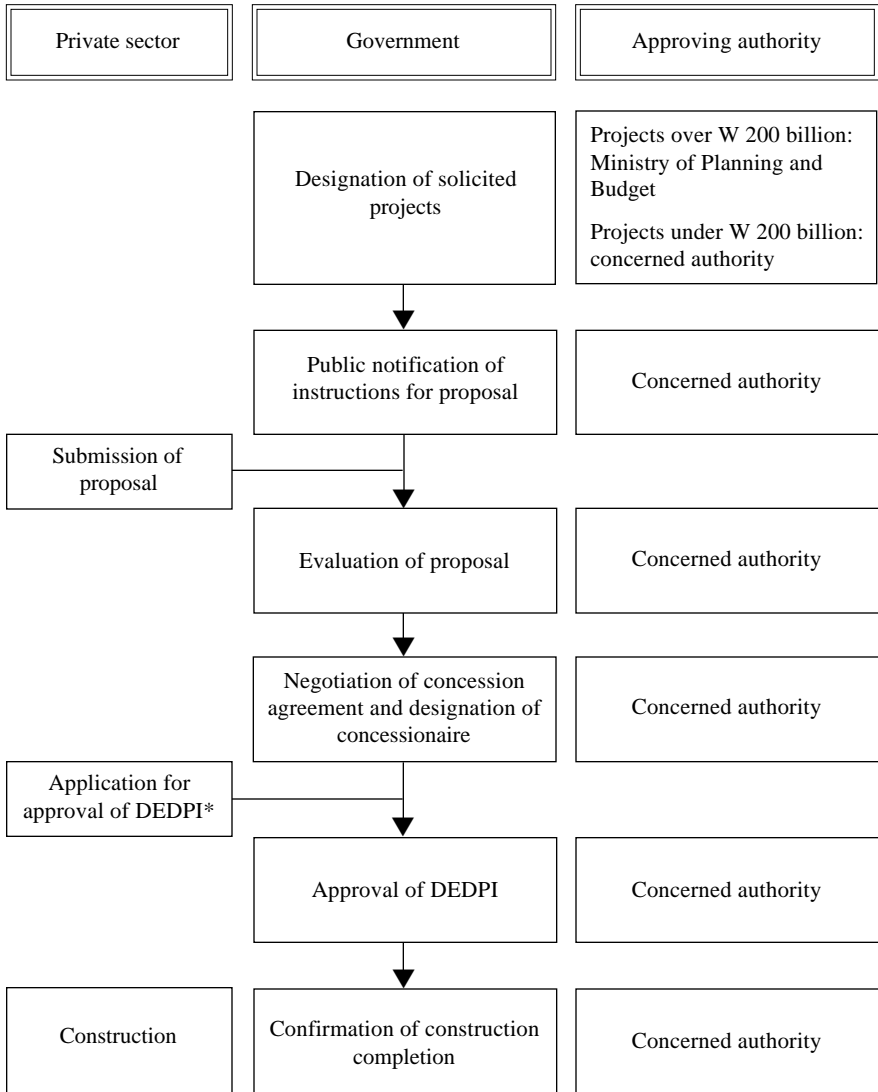
IV. THE CURRENT PPI PROGRAMME

Thirty-four types of projects are eligible under the PPI Act. These are grouped under 10 broad categories of roads, railways, harbours, culture and tourism, water resources, energy, environment, distribution, airports and communications. If a project falls into any of these 10 categories, it can be evaluated as a PPI project. The method of

implementation must then be decided. The procedure for processing a solicited project has been simplified as shown in figure 2. The process has been modified to encourage competitive bidding for projects that are financially attractive. It also allows for negotiation of the terms of the concession agreement.

The Ministry of Planning and Budget, the concerned authorities and PICKO are involved in the selection of investment projects, evaluation of proposals and negotiation of concession agreements. The concerned authority (for example, the Ministry of Construction and Transportation in the case of transport projects) undertakes the initial activities for project development. The concerned authority is also responsible for approval of the engineering plan and confirmation of project completion.

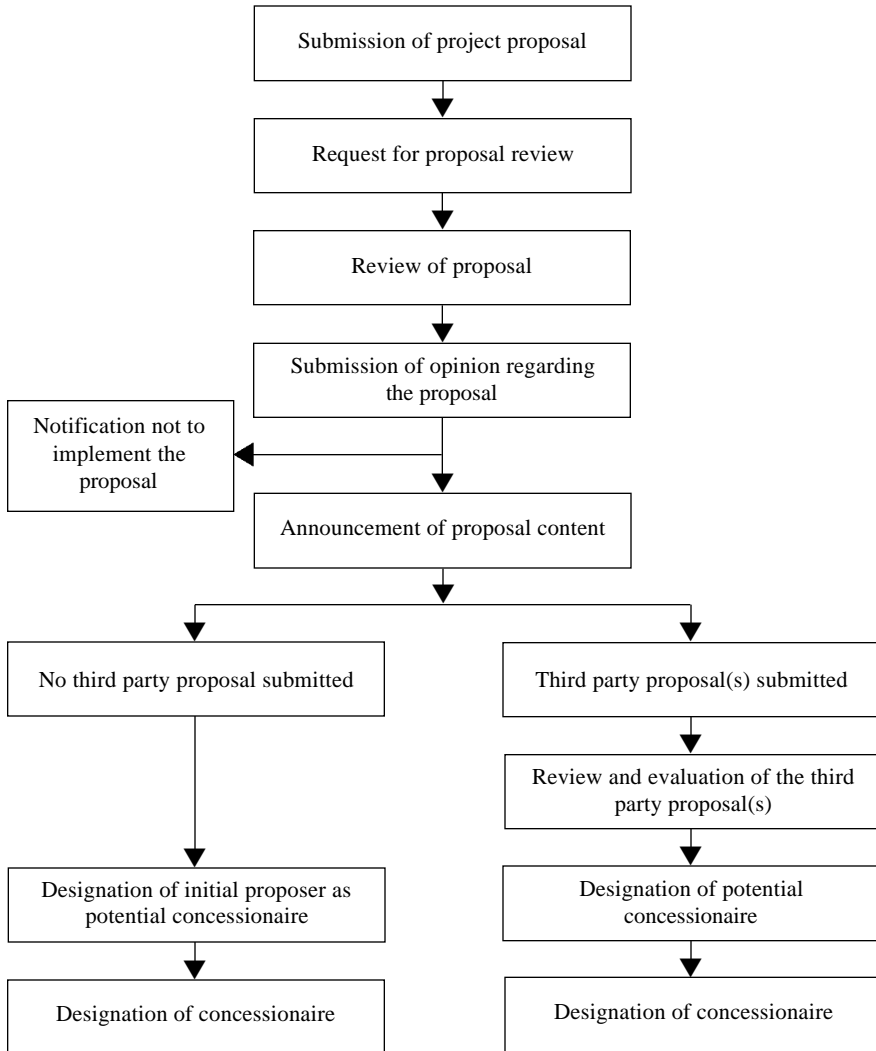
The process for unsolicited project implementation is shown in figure 3. The procedure is similar to that for solicited projects but it also allows proposals from third parties. The private sector sponsor of a project prepares the project proposal and requests PICKO to review it. The project proposal is then evaluated by PICKO. If approved, a public notification of the proposal and its content is made and alternative proposals for the project from third parties are invited. A minimum of 60 days is allowed for submission of proposals by third parties. The proposals from third parties along with the initial proposal are evaluated and a winning bidder is selected. The initial proposer is given a bonus in the evaluation up to a maximum of 10 per cent of the total evaluation score. The project structure is determined through negotiations with the winning bidder.



Source: PICKO, *PPI Program and Investment Projects in Korea*, (KRIHS, 2002).

* Detailed engineering design and plan for implementation.

Figure 2. Process for solicited project implementation



Source: PICKO, *PPI Program and Investment Projects in Korea*, (KRIHS, 2002), p. 16.

Figure 3. Process for unsolicited project implementation

V. INCENTIVES FOR PPI PROJECTS

The financial viability of PPI projects is of great concern to the Government. If a project is found not to be financially viable, then its economic evaluation is reviewed to determine whether the investment is justified in terms of its expected benefits to the economy as a whole. If a PPI project is not financially viable but found to be economically viable, various options are considered for improving the project's financial rate of return. The acceptable financial rate of return of a project is determined by taking into account three main factors:

- (a) The average cost of borrowing for infrastructure projects;
- (b) The risk premium associated with the type and scale of the project;
- (c) The rate of return for similar projects in other countries competing for investor funds.

The reference range for determining the rate of return for PPI projects is 11 to 14 per cent. The rate of return for a particular project is determined through negotiations taking into account the type of project and the level of risk.

Under the new PPI law, the Government can offer a wide range of incentives and take various other measures in order to reduce the risks and uncertainties that may be associated with a PPI project. The incentives are offered in a way that can significantly improve the financial viability of projects and reduce their implementation risks to make them attractive for the private sector. These incentive measures are discussed next.

Land acquisition

The acquisition of land could be a major source of risk to any investor in greenfield infrastructure projects, particularly road and rail projects. In order to reduce the problems of land acquisition, the Government has given priority to the use of public lands for infrastructure projects. If necessary, the Government on behalf of the investor acquires the private land required for a project. In situations where the investor is required to negotiate with the owners for the

purchase of land, the Government assists the investor through its use of the right of eminent domain.

Revenue guarantee

Although it is the intention of the Government to identify financially robust projects, it is possible that some of the projects could have a level of risk that is unacceptable to the private sector. Greenfield projects often fall into this category. For high-risk projects, the Government can provide revenue guarantees. Under the PPI Act, the Government can guarantee up to 90 per cent of the projected revenues for solicited projects and 80 per cent of the projected revenues for unsolicited projects. Where these guarantees are provided, the Government also limits the maximum amount of revenues that the project developer can retain. However, this amount would be a minimum of 110 per cent of the projected revenues for solicited projects and a minimum of 120 per cent of the projected revenues for unsolicited projects.

Tax incentives

PPI projects may also qualify for various tax incentives offered by the Government. These include:

- (a) Exemption from registration tax on the acquisition of real estate for all BOT projects;
- (b) Application from a 0 per cent value added tax for infrastructure facilities or construction of those facilities supplied to the State or local governments as BTO and BOT projects;
- (c) Reduction of or exemption from various appropriation charges;
- (d) Recognition of 8 per cent of the investment as a reserve to be treated as an expense for the purpose of computing corporate taxes.

In addition, the project company may issue infrastructure bonds with a tax rate on interest earned of only 15 per cent.

Foreign exchange risk

Since the economic crisis of the late 1990s in East Asia, one of the serious concerns in the minds of foreign investors in Asia relates to foreign exchange risk. The revenues generated from the services provided by infrastructure projects are primarily in won. Therefore, the Government has undertaken initiatives to limit the investor's risk from foreign exchange fluctuations. Where foreign exchange fluctuations exceed 20 per cent, up to 50 per cent of losses due to such fluctuations may be offset through modifications of tariff rates, government subsidies, adjustment of the concession period or other provisions.

Force majeure

The PPI law provides for government buyout of a project in cases of prolonged force majeure. Government buyouts may also apply in certain extraordinary circumstances as provided for in the concession agreement.

Protection against reduction of tariffs or shortening of concession period

Another incentive is protection from a reduction of tariffs or the concession period if the project developer is able to reduce construction costs below those estimated in the agreement. However, this implies that there would be no adjustment if construction costs exceed the original estimate.

VI. THE 10-YEAR PLAN FOR PPI

In 2001, the Government of the Republic of Korea formulated the 10-year plan for PPI with the main objective of inducing greater private sector participation in infrastructure projects through maximization of the leverage effect of government incentives for PPI projects. The plan provides clear guidance to the private sector concerning the infrastructure investment policy of the Government and priority areas of investment. The PPI plan includes a list of 179 selected candidate projects for private investment over the plan period from 2002 to 2011 by considering their investment priority within each of the five

sectors of infrastructure namely, roads, railways, ports, the environment and other facilities. By providing preliminary information on candidate projects, the plan is intended to prevent interested parties from duplicating their efforts in initial project development activities. It would also help to ensure conformity of the PPI projects with the overall development plan for each of the sectors.

The following general principles were applied in the selection of candidate projects incorporated in the plan. First, economically feasible projects were selected by considering their social costs and benefits. Second, projects that were found profitable enough if promoted as private investment projects were selected after considering their individual feasibility. The estimated rate of return on investment, level of effective operation and level of subsidy required were the factors used in determining the profitability of candidate projects. Finally, factors such as the likely concentration of regional development in the future and growth of demand were to be considered. Within the framework of these general principles, the selection criteria for each sector were established in accordance with the characteristics of the individual sectors.

In the road sector, a total of 18 projects (total project cost: W 18.87 trillion) were selected, consisting of 10 expressways, 4 bypass roads and 4 local roads. In the railway sector, a total of 15 projects (total project cost: W 13.30 trillion) were selected. These consisted of 3 main line railways, 2 metropolitan railways, 3 urban railways and 15 light rail transit (LRT) projects. In the port sector, 29 projects (project cost: W 7.0018 trillion) consisting of 23 trading ports, 2 fishing ports, 3 waterfront facilities and 1 combined passenger terminal facility were selected. In the environmental sector, a total of 39 projects (project cost: W 3.9425 trillion) consisting of 51 sewage treatment plants, 11 incineration facilities, 17 sewage sludge treatment facilities, 8 landfill gas plants, 1 food waste recycling facility and 1 refuse-derived fuel facility were selected. In the category of other facilities, a total of 20 projects (project cost: W 20.537 trillion) were selected. These projects consisted of 2 logistics projects, 13 energy and 5 tourism sector projects.

The total cost of the 179 selected private investment projects is approximately W 63.2 trillion. The net private investment is estimated at W 46.7 trillion excluding government subsidies. Of these, the total project cost for transport facilities is about W 40 trillion and the net private investment is estimated to be W 26.1 trillion. The total project cost for environmental, tourism and energy projects is estimated at W 23.2 trillion with W 20.6 trillion as net private investment. When the energy projects are excluded, as the energy sector is expected to be privatized, the net private investment in environmental and tourism projects is estimated at W 6.2 trillion.

Additionally, a review of the plan for revisions and improvement is planned to be carried out every three years in order to respond promptly to changes in the environment and conditions of the PPI market. In order to accomplish the long-term goals of the plan, a comprehensive management system is needed to divide the roles of government-financed projects and private investment projects and ensure complementarity between the two types of projects.

By implementing the plan, adequate private investment is expected to flow into the Republic of Korea's infrastructure market. This would enable the Government to allocate more funds from its limited resources to expand infrastructure facilities in underdeveloped areas of the country. Implementation of PPI projects would increase the effectiveness of resource allocation by reinforcing the principle of "he who benefits, pays" as the PPI facility users are directly responsible for paying. Within a 10-year period, the Republic of Korea is expected to take the lead in the market of private investment infrastructure projects.

VII. RECENT TRENDS IN THE PPI MARKET

The number of unsolicited projects has been growing since 1999. There were 5 projects in 1999, 23 in 2000, 19 in 2001 and 19 projects in 2002 (as at August). Over these four years, while the road sector has maintained its dominance, the number of environmental projects has soared. In the beginning, most of the unsolicited projects were small ones with a relatively low investment priority, but the trend has changed. The size of unsolicited projects is growing larger and now they rank

high in the Government's investment priorities. One example is the Seoul to Bundang railway project at a cost exceeding \$ 1.6 billion. This railway will link the capital city to Bundang, which is one of Seoul's largest satellite cities.

CONCLUDING REMARKS

The economy of the Republic of Korea has recovered from the Asian crisis of the late 1990s with a wide range of government-initiated reforms, including more transparent and accountable corporate governance, the breakup of the old government-backed chaebol conglomerate system and a major clean-up of the financial and banking sectors. Growth of GDP was strong in the years immediately following the crisis, and growth for this year and the next are projected to be at or above the long-term projection of 6 per cent per annum. The rate of inflation has remained under control, interest rates are low and decreasing steadily and the currency exchange rate has been stable. With these sound economic indicators, no sudden downturn is expected in the economy in the foreseeable future. However, continuing volatility in global financial markets and uncertainties from the nuclear situation in the Democratic People's Republic of Korea may cause instability in domestic markets and harm the investment environment.

A growing economy creates massive demand for infrastructure facilities. The Republic of Korea continues to place high priority on stable and sustainable development of the country, for which the provision of high-quality and adequate infrastructure facilities is essential. It is estimated that over the next 10 years more than \$ 150 billion of investment will be required to meet the growing needs for new and improved infrastructure facilities in the country. The PPI programme of the Republic of Korea is envisaged to meet a large part of this massive investment requirement and thereby to help lay a strong foundation for the country's bright future.

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