

INTRODUCING METHODS FOR SOCIAL INFRASTRUCTURE IMPROVEMENT USING PFI IN JAPAN

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Abstract: In Japan, the movement toward introduction of PFI (Private Finance Initiative) has been rapidly gathering momentum. On the other hand, many difficulties are already foreseen in the way ahead, including historical, institutional and other issues, toward the goal of introducing such a system. In particular, having each risk managed by a body which can manage the risk in a mostly efficient manner (in other word, a body which has an incentive to manage the risk) is thought to be very important. The success of a PFI project depends on whether we can establish such a framework. In Japan, however, such a concept of risk sharing did not exist. This paper provides a summary of the "Guidelines for PFI in Japan" which are being actively discussed as contrasted with Britain, and discusses the issues to be addressed to introduce PFI in Japan.

1. INTRODUCTION

PFI was first introduced in Britain in 1992 as a new policy instrument to develop social infrastructure through maximum mobilization and utilization of the financial power, technical expertise, management know-how, etc. of the private sector to achieve as a high VFM (value for money) as possible. Public interest in PFI has also been increasing in Japan in recent years, as evidenced by the recent submission of the PFI Promotion Bill to the Diet and establishment of various committees by government ministries and agencies and private organizations to study the subject. The Ministry of Construction, too, set up a "Committee for Studying Development of New Social Infrastructure that Induces Private Sector Investment" headed by Professor Fumio Nishino of Saitama University in November 1997, and its interim report entitled the "Guidelines for PFI in Japan"⁽¹⁾ was published on May 19, 1998.

In the following chapter, we will (1) outline the PFI which has been implemented in the U.K, (2) provide a summary of the Japanese version of PFI as contrasted with the British system, and (3) discuss the issues to be addressed to introduce PFI in Japan.

2. WHAT IS PFI?

2.1 Basic Concept of PFI

In traditional social infrastructure development, the government assumed the full responsibility for the construction and management of facilities and was empowered to use public money for these purposes. In PFI, the public and private sectors share responsibilities and risks associated with the construction and management of facilities in a well-balanced manner, taking into consideration the maintenance of the quality of services provided to the citizens. The main difference between PFI and traditional private-sector vitality utilization projects such as BOT and BTO is that part of these rights and responsibilities are transferred to the private sector with the final construction, operation, and management responsibilities left to the public sector. Each sector's roles and responsibilities are clearly defined in advance

by means of a contract. Therefore a wide variety of PFI projects can exist, depending on the share of responsibility born by the private sector and the method to share expected risks, and the success of each PFI project will depend largely on whether the sharing of the responsibility and risks matches the nature of the project.

Expected risks of a PFI project should include not only risks associated with the construction stage such as unexpected increase in construction costs, delay of schedule, and geological and meteorological risks but many other risks including those associated with increase in prices of general goods, financing, currency fluctuation, political change, local opposition movements against environmental destruction, labor issues, insurance, design, variation in demand, management-related troubles, and increase in costs. Therefore it is necessary to clearly define the method for sharing these risks by means of contracts before implementing a PFI project.

In addition, with regard to the question of how to define boundaries among different project categories, still many ways of categorization exist (e.g. combinations of road facility and road traffic services, prison facility and imprisonment services, and computers/software and information technology services) and no clear answer has been supplied yet. In fact, the United Kingdom and other countries are now revising their systems to increase the government's share of responsibility to correct for unfavorable effects generated by the excessive privatization and excessive risk transfer to the private sector which were made in the past years.

In terms of project evaluation method, currently a method based on expenditure comparison with the PSC (Public Sector Comparator: expenditure required to have the project implemented and managed entirely by the public sector) is popularly being used in the project implementation stage, to make sure that a PFI project is adopted only when it is cheaper (thus more efficient) than the traditional approach.

On the other hand, unlike the privatization where the private sector is fully responsible for the provision of services, PFI is guided and supported by the government. For example, basic service standards are determined and monitored by the government in PFI. Furthermore, the selection and acquisition of the project site and provision of required facilities are basically done by the government, and in some cases public money is used to finance part of a PFI project so that the cost of the public aspect of the project is born by the public. In addition, usually the government or other public bodies assume the full responsibility for PFI projects as in the case of a traditional public project unless a special legislative measure is taken to share the responsibility, and the private sector is only required to pay monetary compensation (in accordance with contracts) for damages caused by accidents for which the private sector is blamed. Therefore PFI is suited to areas somewhere in between traditional public works projects and private-sector vitality utilization projects such as BOT (that is, areas where complete privatization is not possible but the introduction of technologies and funds of the private sector would contribute to efficiency improvement of the public sector).

2.2 Techniques Used in the British Version of PFI

In the British version of PFI, the following techniques are used as necessary to heighten the VFM of a project:

- (1) Entrustment of a series of processes from design, construction, management through maintenance phases.
- (2) Avoidance of excessively high specification through appropriate definition of performance to facilitate innovative design, use of new materials, and efficient management.

- (3) Risks transferred to the private sector and entrustment of the project to a body that can manage it with lowest cost.
- (4) Improvement of profitability and project stability through effective utilization of assets.

Prior to implementing a PFI project, a test of VFM is performed. When there is an alternative plan to have the project conducted entirely by the public sector, the VFM of the PFI project is compared with the PSC. PSC is calculated by adding the evaluation value of risks, such as an increase in the construction cost resulting from a thorough geology investigation and a construction schedule delay due to bad weather, that are transferred from the public sector to the private sector (probability of occurrence x estimated sum of damage) to the estimation of the construction, management, maintenance, and other costs incurred when the traditional approach is used, and then converting it to a present value. In some cases, to heighten investment effects, measures may be taken to suppress the government expenditure by counting in the development profit or to improve profitability through combined development or management with other facilities that are constructed by other bodies.

Public Sector Comparator

- | | |
|--|----------|
| • Present Value (PV) of public sector base cost | A |
| • <i>Expected PV of risks transferred</i> | <u>B</u> |
| • Expected PV of public sector solution (A+B) | <u>C</u> |
| • PV of expected value of payments to PFI supplier | D |
| • Good Value for Money means | C>D |

2.3 The 3 Types of British PFI Projects

PFI in the U.K covers many public service areas including traffic, medical care, national defense, information systems, government agency facility construction/repair/management, prisons, educational facilities, sewage, and waterworks, and is divided into the following three types:

(1) Self-sufficient type projects

In self-sufficient type projects, the cost of project is recuperated through the collection of user fees, and the role of the public sector is limited to the planning and authorization of project, control of legal procedures, and other auxiliary work (although the government provides support in the form of the provision of related facilities, administration of existing facilities, and transfer of fee collection rights). Examples of this type of projects include the Dartford Thurrock Crossing Bridge project, Second Severn Bridge project, and the Skye Bridge project. The British government created dedicated laws for each of these projects.

(2) Service purchase type projects

In service purchase type projects, the public sector purchases services offered by the private sector based on contracts and uses them for public purposes. This is the central method for present-day PFI projects. Examples of this type of projects include the DBFO road projects, government agency facilities construction/repair/management projects, and prison-related projects.

(3) Joint venture type projects

In joint venture type projects, government subsidies are used in addition to the recuperation of the project cost through fee collection, in order to guarantee a wide range of social benefits. In principle, the body with minimum requirement for government subsidy is selected and the

final management responsibility is born by the private sector. Examples of this type of projects include the Channel Tunnel connection railway project and Manchester Metrolink project.

2.4 Effects of PFI in the United Kingdom

The introduction of PFI in Britain is being highly valued for the cost reduction of 15% for road-related projects, 10% for prison-related projects, and 60% for national insurance record system projects which have contributed to the reduction of the budget deficit and creation of new business chances.

On the other hand, according to the results of audits conducted by the National Audit Office of the United Kingdom, fairly good VFM figures have been achieved for most projects, but for some DBFO road projects, there are cases where the traditional approach would yield a better result depending on the value of social discount rate for converting the future cost into a present value.²⁾

2.5 Example of PFI Project - DBFO Road Projects -

DBFO is a project implementation method in which a private sector company undertakes the Design, Building, Financing, and Operation phases of a project as one comprehensive project based on a contract signed between the company and the Highways Agency. The Highways Agency pays "shadow toll" to the company. The contract period is 30 years, and after that the Highways Agency will take over the management and maintenance of the project.

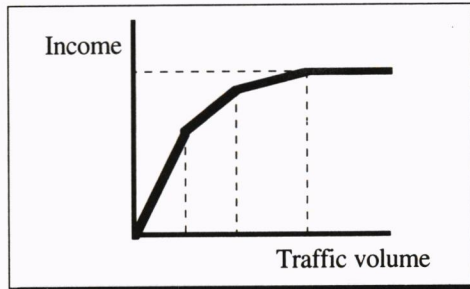


Fig.1 Example of Shadow Toll Setting Based on Traffic Volume

As shown in the figure above, the shadow toll comprises a schedule of unit prices set for different traffic volume bands and vehicle types with the unit price for the top band set at zero. As an incentive for performance improvement, bonuses are given to those who realized traffic accident reduction and penalties are imposed on according to lane closing time. The shadow toll also serves as incentive for early completion, because it is paid on inauguration of the road.

An inspection test of the road surface and structures is carried out 18 months before the expiration of the contract as well as 5 years before the expiration of the contract, to check if the road and structures satisfy the restitution requirements. When repair work etc. are required, they are conducted in accordance with the method specified in advance by means of a contract and at the expense of the private sector company.

2.6 Advantages and Disadvantages of Introducing PFI

Advantages:

- 1) The risks of construction cost increase and delay are transferred to the private sector, and cost increases due to contract changes and delays of construction schedules which were fairly common under the traditional approach are expected to be dramatically reduced.
- 2) Substantial cost reduction can be achieved through the (1) adoption of performance standards, (2) use of blanket orders, and (3) utilization of expertise of the private sector such as long-life designs taking the life cycle into consideration.
- 3) There are large financial advantages for the government or government agencies including the (1) price fixation resulting from risk transfer, (2) distribution of expenditure, and (3) elimination of the need for quick funds.
- 4) Promotion of technological innovation
- 5) The enhancement of the transparency of projects resulting from the checking by the third party (financial institution etc.).

Disadvantages:

- 1) Very high costs (consultant fee, lawyer fee, etc.) are required for the bidding and in big projects lost bidders may lose money over 100 million yen.
- 2) Very long time is required for the bidding and other procedures, and usually it takes more than 1 year until the determination of the successful bidder.
- 3) In general, participants of PFI projects are limited to relatively large companies. This means that small and medium sized companies may be virtually excluded from PFI projects and a small number of big companies with strong technical expertise in a particular field may dominate a PFI project in that field.
- 4) As PFI projects are operated under long-term contracts, it is usually hard to modify them later to adapt to changes in the economic situation and technological innovation, and thoughtless implementation of projects may severely reduce the flexibility of the national budget in the future.
- 5) If the method for risk sharing between the private and public sectors or the content of contract is not appropriate, the cost of insurance against the increase in monetary costs or bankruptcy may become unreasonably high, which means that the total cost of a PFI project may become higher than that of an equivalent project employing the traditional approach or there may be cases of a contracting company intentionally bankrupting the project for economical reasons or a PFI project becoming a target of speculation.

3. JAPAN'S EXPERIENCE IN USING PRIVATE SECTOR UTILIZATION PROJECTS AND VISION FOR THE INTRODUCTION OF PFI

3.1 Japan's Experience in Using Private Sector Utilization Projects

The utilization of the power of the private sector in Japan started with the privatization of public corporations in 1980s (e.g. Japan National Railway, Nippon Telephone and Telegraph Corporation). After this, Japan went through a period of prosperity of private sector utilization projects and the third sector approach, and then came a series of bankruptcy of third sector corporations in the late 1990s.

In the world of road construction, the Japan Highway Corporation was already established in 1956 and the current system which was very rare even by world standard was established whereby expressways and toll roads are constructed almost entirely by the toll collected from the users. Under this system, several public corporations for road construction have been established and are being relatively well managed as a whole.

With the recent intensification of the demand for cost reduction, administrative reform, and deregulation, increasing number of people are being interested in the idea of introducing PFI with the hope that they can follow the successful example of British people. In Japan, the main industries which have already been privatized include the main railway lines, the airlines, the tobacco industry, and the utility companies including electricity, telecommunication, and gas, while the local transportation (subways, local railway lines, bus companies), postal service, airports, waterworks, pension, national forests, and most of the toll roads are operated by public organizations, specially established corporations, and third sector companies.

Although the pace of the privatization of Japan's public sector services so far is by no means dramatic as can be seen in the reality that part of the shares are held by the government or the incumbent is protected by regulations including those controlling new entries, Japan's privatization projects in the past are considered as a success as a whole. On the other hand, increasing number of people are now being interested in the idea of introducing PFI with the hope that they can follow the successful example of British people, because of the fact that the number of remaining organizations that can be fully privatized as a single company is now becoming smaller and smaller and the resolution not to repeat the examples of failure of thoughtlessly undertaken third sector projects caused by the failure to clearly define the role of each party and the method to share the responsibility and the resultant large-scale bankruptcies and delays in many areas throughout Japan.

Most of the failed third sector projects are in the fields of resort/leisure facilities development, large-scale industrial complexes development, and large-scale urban development, and there is almost no example of failure in road/transportation-related projects.

3.2 Characteristics of the Japanese PFI

Table 1 shows the outline of the "Guidelines for PFI in Japan" published by the Ministry of Construction. Description of the characteristics of the Japanese PFI follow:

Table 1 Outline of the "Guidelines for PFI in Japan" Published by the Ministry of Construction

<p>Concept of the New Social Infrastructure Development Policy</p>
<p>1. Viewpoint of the Promotion of the New Social Infrastructure Development Policy (omitted)</p>
<p>2. Framework of the New Development Policy</p>
<p>(1) Basic concept</p>
<p>1) Project implementation technique to achieve efficient development of social infrastructure and effective utilization of government expenditure through the involvement of the private sector and the resultant introduction of the market mechanism etc.</p>
<p>2) The policy is implemented for social infrastructure development projects which would have been conducted by the public sector.</p>

- 3) These projects are conducted based on active management decisions by the private sector with appropriate support by the public sector, utilizing ideas and proposals from the private sector.
 - 4) The ratio of the sharing of roles, responsibilities and risks between the private and public sectors and the degree of support provided by the public sector are basically determined by an agreement between the private sector participant and the public sector organization in charge of the project.
- (2) The government's stance on important points of agreement between the private and public sectors
- 1) Role of the public sector organization in charge of the project: Development of an environment in which as many areas as possible are subjected to the market mechanism to promote participation of private sector companies so that the policy objectives will be met effectively with minimum cost.
 - 2) Risks associated with the project are taken by the organization which can manage them in a most appropriate manner.
 - 3) Provision of public support is considered appropriate because PFI projects are designed in line with public sector's social infrastructure development plans, but it is required that a PFI project reduces the overall public sector expenditure (counting in the improvement in service standard) as compared with an equivalent public works project.

Applicable areas

Type 1 (toll collection type)

The cost of development is recuperated through toll collection or appropriation of income from related projects.

Type 2 (joint development type)

The public sector's expenditure is reduced through joint development of public and private facilities.

Type 3 (public service purchase type)

The private sector participant develops and manages facilities and receives payment for the provision of the services from the relevant public organization.

Development of the environment for promoting the introduction of PFI

1. Financing-related problems

Securement of intervention right, establishment of a third party arbitration organization, setting of right of pledge on cash flow, commitment to provide loan, deregulation of dividend restriction under the commercial law.

2. Public support

- Subsidies (it is required that the amount is reduced as compared with the public sector's expenditure for conducting an equivalent project using the traditional approach)
- Tax privileges
- Loan system (it is necessary to consider a certain degree of tax reduction, a low interest loan, or a no interest loan)
- Debt guarantee

- Financing (measures should be taken not to undermine the autonomy of the private sector)
- Other public monetary aids for planning/adjustment, site acquisition, and the development of related public facilities.

3. Other legal issues (omitted)

4. Publication of information to promote the introduction of PFI (omitted)

An Example of PFI Project Implementation Procedure

1. Proposal for project

It is desirable to have a proposal for project from the private sector, but initially open invitation may be necessary.

2. Invitation to project

Public notice → statement of intention to participate → invitation to project → audit of qualification → submission of proposal

3. Selection of participants

Participants are selected based on the size of the public sector expenditure, risks to be transferred, type of services provided, etc.

4. Signing of agreement for the project (omitted)

5. Financing (omitted)

6. Actions to be taken in the event of bankruptcy

Project restoration by the private sector should be conducted wherever possible. In the case of a bankruptcy for which the participating company is to blame, the project is taken over by an alternative operator (market price). If this is not possible, the project is taken over by the public sector organization in charge of the project.

7. Transfer of facility

Transfer of facility is made at a zero price, at a price determined in advance, or at the market price at the time of transfer, depending on the stipulation of the agreement.

① Enhancement of Social Infrastructure Development through Effective Use of Government Expenditure

The Japanese version of PFI is designed to reduce the overall government expenditure (counting in the improvement of the service level) as compared with the traditional approach to public works while facilitating social infrastructure development.

In the field of road construction, in which many toll-collection type projects were undertaken in the past, projects are basically designed as government subsidization type projects.

One innovative aspect of the Japanese version of PFI is the addition of the joint development approach whereby the government expenditure is reduced through joint development of public facilities by the private and public sectors. It is expected that this approach will generate projects which would have never been realized with the traditional approaches of private sector only or public sector only in the fields of urban development and toll roads development.

② Revision of the Method for Defining the Role Sharing between the Public and Private Sectors

Risks and responsibilities associated with the development and management of facilities are divided into a group of risks and responsibilities that can be better managed by the public sector and a group of risks and responsibilities that should be taken by the private sector, basically under an agreement between the participating private company and the public body in charge of the project.

However, it is stipulated that in many cases the environmental assessment and site acquisition parts are better managed by the public sector.

③ Creation of Opportunities for Private Sector Work

It is stipulated that those projects whose efficiency will be improved by the adoption of the approach whereby the public sector pays money for services provided by facilities constructed and managed by the private sector are treated as PFI projects. In particular, it is stated that the proposing of projects from the private sector is important for creation of opportunities for private sector work.

The Guidelines stipulate that PFI project operators will be supported by the government in the forms of preferential tax treatment, public loans, financing and debt guarantee by the government, etc.

The Guidelines also stipulate that the public sector must publish information on public facility development programs so that private companies can consider their chances of participating in PFI projects.

4. ISSUES TO BE ADDRESSED TO REALIZE THE JAPANESE VERSION OF PFI

4.1 Determination of the Scope of Risks to Be Transferred to the Private Sector

In the past, almost no attempt has been made in Japan to transfer risks to the private sector including risks associated with financing, despite the fact that Japan has some track record of social infrastructure development utilizing the power of the private sector including projects of public corporations like the Japan Road Corporation.

This situation was caused partly by the underdevelopment in Japan of project financing-related legal systems and of derivative instruments and insurances including the securitization of real estates to finance projects, and partly by the tradition of the Japanese construction industry whereby the public sector manages almost all aspects of the project with almost no risk sharing and the private sector only participates in the construction work phase, just like in the old days of state-run projects to modernize the country.

The most important thing in a PFI project is to obtain high return by transferring to the private sector as many risks as possible and managing the risks in an appropriate manner. Therefore in order to increase the VFM of a project, it is important to determine the risks to be transferred from the public sector to the private sector and accurately calculate the evaluation value of the risks. However, both the public and private sectors are reluctant to promote risk transfer, because not only the public sector but also the private sector (both the construction and financing industries) is seriously lacking experience in risk management and risk evaluation in Japan.

Therefore to realize the Japanese version of PFI, much debate has to be done as to what extent the transfer of risks from the public to private sectors can be done in the face of the institutional and historical obstacles.

4.2 Method for Determining the Public Sector Comparator

In order to determine whether a project should be conducted by the public sector or private sector, it is necessary to evaluate various risks to be transferred through quantification and to make fair comparison of the public sector (which is privileged in terms of tax, etc.) and the private sector. Japan is badly lagging behind the United Kingdom in this field and further accumulation of experience and knowledge is required.

4.3 Establishment of Evaluation Method

The selection of the private sector participant(s) must be made in an objective manner. However, the public sector has yet to develop a method to evaluate proposals from private sector companies in an objective manner when the degree of risk transfer and service standard vary.

In addition, as there is no common criteria for selecting PFI over traditional methods in Japan, each organization implementing a PFI project uses its own criteria, such as the availability of subsidies and public support, type of tax systems applied, and costs, as well as many different PSCs for comparison with the PFI project other than traditional public works projects, such as specially established corporations and third sector projects.

4.4 Applicability of Contracts that Include Incentives or Performance Standards

To lead a PFI project to success, it is necessary to provide incentives in return for the sharing of risks and introduce performance standards that enable cost reduction. However, if the present accounting system, insurance system, and public facility technical standards are applied as they are, it may not be possible to use these measures to make PFI projects attractive.

It is also expected that there will be many problems including public opinions against the PFI project until the signing of the contract, as the size of the contract would be extraordinarily large to the extent that there is no previous example in Japan.

4.5 Deregulation Relating to the Financing and Contracting Systems

It is expected that initial PFI projects will be slowed down by many legal and customary constraints including the financing regulations, the government's accounting system, nation's insurance system, regulations relating to public properties, permission system for the construction/maintenance/management of facilities (including pricing), and exclusive trading practices.

Therefore deregulation in these areas must be done in parallel with the introduction of PFI. However, this means that some people who have relied on these regulations must suffer considerable losses, and inevitably protest movements will occur in many areas.

5. CONCLUSION

The Japanese version of PFI is presently being designed as a system that provides public support for the implementation of projects and utilizes the rich funds held within the nation. On the other hand, initial PFI projects are expected to be delayed by many obstacles. Thus it is necessary to solve many problems before a PFI project completely led by the private sector can be realized including the evaluation of the value for money, publication of information, and novel financing approach employed in the British PFI. However, there may be areas where such a project can be implemented even under the present legal system, and it is necessary to proceed gradually with the development of the legal system and development/standardization of procedures toward the projected full-scale introduction of PFI, in accordance with the Guidelines. As joint development is one area where we can implement projects at this stage, it may be necessary to implement pilot projects in this area to identify problems, contrive solutions to the problems and accumulate know-how, and then gradually implement projects in other areas using the information obtained.

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