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Infrastructure Building in East Asia from the Viewpoint of Japan

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1. INTRODUCTION

For stable economic development, it is essential to invest in the productive equipment and infrastructure. Without their proper balance, stable economic growth is not obtained. Since the late 1980's, East Asia has grown rapidly due to the inflow of foreign direct investment. As East Asia grows, the lack of infrastructure had been recognized as the bottleneck for sustainable growth. Governments in less developed countries (LDCs) have been building infrastructure by themselves using tax money or external borrowing. The World Bank [1994] estimates that about 80 % of government expenditure invested on infrastructure. This high ratio caused the financial stringency. Building and operating infrastructure by government or public utility companies gives rise to inefficiency in the system, since it is a monopoly. To cope with this inefficiency together with financial stringency in LDCs, privatization and investment through the Built-Operate-Transfer (BOT) method in infrastructure have been proceeded by the structural adjustment plan at the World Bank and other international financial organizations since the late 1980's. LDCs also tend to prefer the BOT method for building infrastructure, because it does not lead to increase in the burden of external debt. It was also a

good opportunity for Western public utility companies to pursue their profits in LDCs, since they no longer prosper from their domestic competitive market due to deregulations and increasing competition. By utilizing their abundant experiences in LDCs, investment for infrastructure has been growing steadily ever since. The World Bank [1997] estimates that funds, either domestic or foreign, for investing for infrastructure to LDCs grew from US\$17 billion to US\$35 billion in two years since 1993. Investment for infrastructure by private firms becomes possible due to deregulation, the development of technological innovation in international finance, and the diversified method of financing funds. Inflow of investment funds for infrastructure from Japan plays second fiddle to Western countries in East Asia, while the Japanese share of trade and ODA in this area occupied quite high ratio. In this paper, we attempt to clarify why Japan did not take a main position in investing for infrastructure in this area.

In addition, it can be recognized that the economic crisis in East Asia greatly influenced the participating agents who build infrastructure in this area. This paper also aims to examine how the financial crisis gave effects to infrastructure building in East Asia.

This paper is divided into four parts. We will view the recent situation of Japan's participation in East Asian infrastructure building in the next section. In the third section, we examine the effects of the financial crisis on infrastructure building in East Asia by making a comparison of two countries, namely Thailand and the Philippines. The fourth section seeks to compare the merits and demerits of BOT and discuss the role of government in promoting the BOT method. Finally, we will discuss the possibility of Japanese firms applying their experience of infrastructure building in East Asia in the domestic market.

2. CURRENT SITUATION OF INFRASTRUCTURE BUILDING IN EAST ASIA AND JAPANESE PARTICIPATION

In this section, we compare two schemes of infrastructure building, namely construction by government or by BOT from the viewpoint of risk sharing. Then, we summarize the characteristics of the participation of Japanese firms in the construction of infrastructure, and make comparisons with Western firms. We try to clarify why the Japanese participation in BOT lags behind in comparison to Western firms. In addition,

governments' policies are compared.

2.1. BOT in East Asia¹

Governments in LDCs have been constructing infrastructure directly using tax and borrowing money, and monopolize the infrastructure operation. This became a burden to their economy, because of its limited size. In addition, they could not raise enough funds, and their management was inefficient due to their lack of know-how. From the late 1980's, in order to cope with these issues, they adapted a new scheme to build infrastructure, that is, Private Finance Initiative (PFI), which makes full use of private funds and efforts to construct infrastructure. There are several categories of private participation in infrastructure construction. In this paper, we focus on the Built-Operate-Transfer (BOT) method, since this type is commonly adopted.² Thus far, BOT projects in the world related to International Finance Corporation (IFC), give rise to the estimated 21% internal rate of returns in average.³ This rather high ratio shows that infrastructure building is a good business, and it grows successively all over the world. Especially, inflow of infrastructure investment funds to East Asia is most abundant in the world (see World Bank [1997]).

Private firms, who want to construct infrastructure collect fund by the project finance method, for instance, and the merit of the project finance is to raise large funds and to disperse risks related to raising funds. Regarding PFI constructing infrastructure, private firms have to take various risks. It is said that there are following risks related to BOT: (1) set-up risk; (2) completion risk; (3) income risk; (4) management risk; (5) political risk; (6) country risk; and (7) natural disaster risk. These items are rather common and there is no need for further explanation, but let us explain in more details about (1). Set-up risks are related to the commencement of projects, and include the cost of feasibility study, and negotiating with the sections of government.

So far private firms have been engaging in risky investment seeking higher rate of returns by taking risks, so one would naturally ask: what is the difference between private investment and PFI (BOT)? In the former, firms have to take their own risks; on the other hand, in the latter they have to share the risks with the public sector. That is, by arranging the scheme to share the risks with a government, firms can reduce risks and expect sure profit. The success of BOT thus depends on how to establish the proper scheme of 'public-private partnership,' especially the scheme

to share the risks involved.

2.2. The Situation of Japanese Public Utility Companies

In the East Asian BOT market, the main players have been Western firms, since they have already accumulated lots of experience and know-how in those fields. Their domestic markets had already been satiated, and they had to find areas to expand their activities by seeking more profits. On the other hand, the main aim for Japanese firms to participate in the BOT market is to obtain experience and know-how related to PFI in Japan. So far, Japanese banks, trading companies, and general construction companies have been participating in the competition of the BOT market, but those companies were not main project organizers. Main project organizers are usually Western firms, and Japanese players joined syndicates only as members so as to secure orders of fund, materials, equipment, and so on. Although Japanese manufacturing companies can produce superior commodities, they do not own operational capability as project organizers. Western firms, on the other hand, had already enough experience since their colonial times.

Among Japanese firms, public utility companies have lots of experience and know-how on infrastructure construction so far. Public utility companies, however, were restricted in their overseas operation by government regulations. Since 1994, those regulations are being abolished one by one, but still the firms cannot establish even affiliated companies.⁴ They are currently permitted to join on an equity participation basis only. In this case, the regulatory authorities implement a so-called administrative guidance, that is, they approve projects after they evaluate the country risk, the trade insurance, the guarantee pledged by a government, etc. On the other hand, Western governments permit to set up affiliated companies on conditions that differ according to the recipient countries, so that Western firms can penetrate overseas easier than Japanese firms, who are not permitted to do so. In addition to these regulations, the high internal rate of returns in the domestic market is another important factor that prevents Japanese firms from participating in such overseas activities. Due to high domestic demand, they are less incline to engage in overseas investment. Public utility companies, that are regulated monopoly, are, in turn, under the obligation to fulfill supply quotas (universal service obligation), making this way the domestic market their first priority.

Put simply, there are two main reasons Japan lags behind Western countries in the East Asian BOT market. The one is less experience to introduce private finance to infrastructure. The other is the existence of Japanese regulation that prevent public utilities from investing in overseas projects.

2.3. BOT Related to Japanese ODA

Japan has performed the main role as far as ODA in East Asia is concerned. According to the ODA flow in East Asia in 1997, the share of each country is as follows: Japan 56%, Germany 13%, France 7%, Australia 6%, Sweden 3%, and others 15%.⁵ In this section will take a closer look of how Japanese ODA funds are utilized in relation to BOT in East Asia.

Although public funds are not allowed to be used for private investment in general, Japanese ODA can finance private investment aiming at the construction of infrastructure. It consists of the following four categories; (1) grants; (2) loans; (3) technological assistance;⁶ and (4) international emergent assistance. As far as infrastructure construction is concerned, grants and loans are related. The latter are much larger than the former. Grants are invested in fields of life-related infrastructure, such as schools, hospitals, environmental improvement. The share of Japanese grants to these areas in 1997 is as follows: Asia 41.3%, Africa 31.8%, Latin America 9.4%, Middle East 8.7%, Eastern Europe and Central Asia 6.1%, and Pacific 2.7%. In the context of BOT, loans play an important role. Table 7.1 shows the share of loans in different infrastruc-

Table 7.1: The Share of Loans in Different Areas (%)

	1995	1996	1997
Agriculture, Forestry, and Fishery	13.3	11.8	11.9
Mining and Manufacturing	0.7	0.7	3.8
Economic Infrastructure	63.8	58.1	68.0
(Transportation)	32.9	32.2	37.8
(Electricity)	28.7	22.5	27.1
(Gas)	0.0	0.0	0.0
(Telecommunications)	2.1	3.4	3.0
Social Infrastructure	13.5	25.2	2.9
Structural Adjustment	2.3	0.8	3.1
Others	6.4	3.4	0.3

Source: MOFA [1998], *Japan's ODA Summary 1998*

ture areas. The share of Japanese loans invested in these areas in 1997 is as follows: Asia 77.8% (ASEAN and Cambodia 36.7%), Latin America 12.2%, Middle East 4.3%, Eastern Europe 3.3%, Africa 2.2%, and other 0.2%. The top five recipient countries in 1997 are as follows: Indonesia (¥215 billion), China (¥203 billion), India (¥133 billion), Thailand (¥106 billion), and Vietnam (¥85 billion).⁷

Characteristics of Japanese ODA are summarized as follows: (1) projects should be initiated by LDCs; (2) infrastructure invested ODA funds should be authorized as public projects. Since ODA funds are public money, it can be utilized from different principle from that of private funds. The following two are examples of objectives regarding infrastructure construction: (1) construction of circum-infrastructure building around infrastructure by BOT; (2) support for reducing distinctive risk in BOT. The former includes support related projects.⁸ The later implies that ODA is playing a supportive role in reducing the burden of host country in case a contingency occurs. Recently, ODA has been financed not only by foreign currency, but also by domestic currency, to compensate for lack of local cost.

BOT projects are limited to be financed only by private firms. They require the participation of a public agency in the host country, since BOT is not only project risk but also country risk driven. The participation of the host country reduces the latter. The Japan Export-Import Bank (JEXIM), however, can finance projects even when the recipient countries do not guarantee them, and provides low rate loans. It involves only political risk caused by a change of government policy, for example. MITI reduces the risk by means of trade insurance. In comparison, Western export-import bank, except France, can take not only political but commercial risk also. Table 7.2 presents the difference of guarantees

Table 7.2: The Difference of Guarantees by Export-Import Bank (%)

country name of organization	Japan JEXIM	United States Eximbank	Canada EDC	Italy SACE	France COFACE	Germany Hermes	United Kingdom ECGD
risk coverage							
<construction period>							
political risk	59.5-97.5	100	100	95	95	95	100
commercial risk	0	case by case	100	0-85	0	95	1-100
<end of payment>							
political risk	95-97.5	100	100	95	95	95	100
commercial risk	0	0-100	100	0-85	0-60	95	1-100

Source: Hayashi [1996].

by export-import bank in each country. These guarantees have the role of inducing private investment.

3. INFRASTRUCTURE BUILDING IN EAST ASIA AFTER THE ECONOMIC CRISIS⁹

Starting in East Asia in the late 1980s, BOT seemed to be successful, but the East Asian economic crisis in 1997 changed the situation. An economic transformation has been occurring in various aspects ever since. The aftermath of the crisis, however, is quite different according to the country. Here, we pick Thailand and Philippines as examples, and compare the differences in infrastructure building.

3.1. Comparison of Two Economies before 1997

The economic condition of the Philippines and Thailand before 1997 was completely different. The Philippines had been lagging behind in economic growth, while other ASEAN economies enjoyed steady growth. In order to catch up these economies, the Philippines has tried to change its economic system by structural adjustments, building of infrastructure, and so on. On the other hand, Thailand was at its peak. For example, Thailand had recorded a growth rate of more than 8% since 1987. The situation was moving toward the creation of a bubble economy, but people were enthusiastic about it.

Since the Philippines was categorized as a country with a high country risk due to the low economic growth, the project risks were taken positively by the government in order to attract private funds. In addition to this, the government of the Philippines gave incentives to foreign firms, such as tax break and subsidies. It has also a well-established legal system that is influenced by that of the US. In 1990, BOT law was legislated, quite earlier than in other East Asian countries. The feature of this law is to include the following four factors in the statutory form: (1) definition of the project; (2) clarification of the orders of project selection; (3) setting up an appropriate institution that deals with the project; (4) giving incentives to private funds. Because of all these, the Philippines attracted foreign firms to the country.

Thailand, on the other hand, was of low country risk. BOT in Thailand was basically similar to project finance in the developed countries. The Thai economy was rather strong, and they did not use BOT as a

solution to cumulative external debt. The Thai government established a BOT law in 1992 in which they laid out the stages participants should take. Although risk was always taken by project organizer, the Thai government intervened to all accounts in contracts. They interpreted the contents of contracts as they favored, and forced foreign firms to accept their interpretation. Moreover, the Thai government would take much time, sometimes more than six months, to give the official permission, even when firms already received the preliminary one. In spite of this, foreign firms came to Thailand and built infrastructure such as IPP and bridges to solve the traffic congestion problem so as to satisfy their strong demand.

By comparison these two economies did not differ in attracting private finance before the economic crisis. The difference is in the number of project categories. The Philippines put most of its effort to construct electricity infrastructure, which can expect stable returns. It put in more than 60% of private finance to this kind of infrastructure. On the other hand, Thailand put funds to various infrastructures. Some were low risk ones, such as electricity, some are rated as high risk, such as highway projects.

In sum, before the economic crisis, both countries attracted successively private funds for the construction of infrastructure. However, the situation changed completely after the crisis. We will discuss this in the next section.

3.2. Two Countries after the Economic Crisis

After the economic crisis, new finance became difficult. For example, the inter-bank rate in Thailand rose up to 23%. Since both countries obtained funds in dollar terms by making use of the difference in the domestic and foreign interest rate, most of the funds were foreign loans. The burden of interest payments increased, and this led to the budget crisis, since the governments guaranteed the debt. Most of the projects were supported by the governments, as explained earlier, and this caused the stoppage and suspension of projects. The situation, however, was different in the two countries.

In Thailand, the purpose of foreign firms in investing on infrastructure was not only the projects themselves, but also capital gain in real estate due to the bubble economy and an increase in passenger demand for trains to avoid traffic jams, for example.¹⁰ Those were not realized

because of the economic crisis. In addition, the Thai government changed its policy and asked for the compensation for the losses suffered not only from the affiliates but also from their parent companies. This caused the huge losses to foreign investors, and decreased the inflow of foreign investment for private finance in Thailand.

In the Philippines, the influence of the economic crisis was rather small, and infrastructure building was not disturbed greatly. The reasons are: (1) the country was not experiencing a bubble economy at that time, and as such, participants aimed for profits from projects, not speculation; (2) they had a stable legal framework and no change in government policy. The Philippines government tried to continue the projects by means of budget cuts in order not to lose its credibility.

Thinking again of the categories of projects explained before, Thailand had various projects of lower or higher risk for the participants, while most projects in the Philippines were of low risk. Low risk for participants means heavier burden for the government. Participants in the Philippines were not influenced much by the economic crisis, since the government guaranteed their income. This meant an increase to the government's credibility, because it did not change its policy. On the other hand, this increased the financial burden to compensate the participants' income. Infrastructure by private finance did not decrease due to the credibility of the Philippine government.

To sum up, the experiences of these two countries show that the legal framework and the observance of contracts are important to attract foreign funds to infrastructure building. Foreign participants also learned much from the economic crisis. That is, before making contracts, they should be careful to check the projects from the viewpoint of the size of the project, simplicity of project aims, the schedule of retirement of funds, etc.

4. FUTURE POSSIBILITIES OF BOT IN EAST ASIA

Thus far, developing countries treat BOT as the magic tool to build infrastructure with no burden to its budget, although BOT has demerits in relation to host country's economy. We summarize the merits and demerits of infrastructure building by BOT in this section. In addition, we examine the way to promote BOT from the viewpoint of the host and donor country.

4.1. Merits and Demerits of Infrastructure by BOT

Let us begin with the merits. Infrastructure building by BOT does not depend on the amount of funds in the host country, and the introduction of foreign funds does not lead to an increase in sovereign debt. Thus, even the country with accumulated large sovereign debt can build infrastructure. In addition, BOT tends to transfer technology including know-how and business management. BOT has so-called the 'cow-bell effect,' which implies that funds from the World Bank, for example, are followed by private funds, and this reduces the country risk, since those funds from international institution were screened and authorized under severe conditions and probation by such institutions, a signal that the country is safe and stable. Then, much private funds will be attracted.

BOT, on the other hand, has the following issues. First, under the BOT scheme, high return projects are constructed by foreign firms, while projects of low returns remain untouched. Thus, governments are forced to undertake unprofitable infrastructure projects. Second, infrastructure that is built under the BOT scheme, tends to be operated by monopolies, something that leads to inefficiency in management. Charges also tend to be high, since they are regulated by the authority. Third, infrastructure projects will be delivered to the government in the future, so that private firms tend to do insufficient maintenance.

4.2. The Role of Government in order to Promote BOT

According to the above, we found that BOT should be financed and operated by domestic agents, if possible. If foreign firms are participating, the issues related to the fluctuations of the foreign exchange rate and difficulty of the liquidation of collateral might arise. However, host countries have to depend on foreign funds to construct infrastructure, because of the shortage of domestic funds. We have already mentioned few conditions for promoting private investment in LDCs, such as keeping consistent policies, the maintenance of the suitable investment environment, and the enhancement of the transparency of the decision-making process. In addition to these, the following are required: (1) establishment of long-run plans for introducing private investment from overseas; (2) selecting and focusing on particular projects in need of governments guarantees, otherwise the burden of debt on the government might increase; (3) obtaining ODA not only directly related to physical invest-

ment, but also to research and feasibility studies, since the success of the project depends on them; (4) promoting human resources specialize in project management and feasibility study; and (5) exchange views and information among host and donor countries through the sending and receiving of missions and the holding forum, for example.

All these are related to foreign participants, but there are some conditions that concern the domestic interest groups. LDCs have to have strong leadership and make the following efforts to persuade consumers and related firms by presenting that PFI projects might have negative effects at an early stage, such as increase in charges due to the cut of subsidies given by the government under public monopoly, but in the end they give rise to positive effects. This is also applicable to labor issues, because excess labor under public monopoly might be laid-off under the private management.

The best way to construct infrastructure in developing countries is when it is financed by the countries themselves, not by private finance from developed countries after all. The reasoning is that if they can finance the projects themselves, they no longer need to be bothered with foreign currency fluctuations. To make it possible, developed countries have to assist in setting up financial markets and foster institutional investor in the host countries. This is feasible in the East Asian countries, since their saving rates are higher than in other developing countries.

5. APPLICATION OF BOT EXPERIENCE TO THE JAPANESE ECONOMY

Private firms are engaging in risky investment seeking higher rate of returns by taking their own risks; on the other hand, in PFI they have to share the risks with the public sector.¹¹ By arranging a scheme of 'public-private partnership,' they can share the risks with the government, then reduce them and expect sure profits. This is one of the most important impelling reasons for firms to participate in PFI.

PFI started in Japan in 1999, but firms have not yet had enough experience. It is said that most firms are interested in the amount of subsidies provided by the public sector even in PFI. But this goes against the principle of PFI. Participation in PFI must be decided after careful evaluation of profits and risks as with any business opportunity. In this sense, Japanese firms have not had any domestic experience thus far. However, some Japanese firms have been already participating in overseas BOT,

accumulating thus enough experience and know-how. In turn, they can utilize it in domestic BOT (PFI) projects.

The experiences of engaging in overseas BOT projects also reveal some shortcomings. One of them is less recognition of taking risks, which is common among foreign firms, through there are risks related to Japanese firms only. Even if there was no PFI in Japan, those issues might surface in Japanese PFI in the future. The followings are the list of such examples: (1) weakness in evaluation of risks; (2) less recognition of taking risks; (3) lack of strict observance of the contracts; and (4) expecting public subsidies. The evaluation of various risks is the most important in participating in PFI, and Japanese firms are said to be weak in this account. This is not particular only to firms, but all Japanese economic agents, including consumers, are reluctant to take too much risk. Taking more risk, or seeking high return with high risk rather than low return with low risk have been popular phrases in the transformation of the Japanese economy.¹² As to domestic PFI, there is less risk similar to the country risk, but this does not necessarily imply no risk at all. As for (3), it is said that Japanese firms are incline to obtain projects contracts through their special connections, and this leads to less strict evaluation of the projects. Even after commencement of the projects, a change of the ruling party or a head of an authority might cause them to deviate from the original contracts. This is obvious from the experience in Thailand. On the other hand, Western firms are said to be stricter when it comes to business decisions.

In sum, PFI is said to make the Japanese economy shift from the traditional infrastructure building. PFI, however, cannot change the Japanese system automatically, but it is mind-frame of the firms and the government that should change first. The failure of the so-called 'third sector method' should not be repeated in PFI.

Notes

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¹ About each country's situation in East Asia, see Euromoney [1996], *Project & Infrastructure Finance in Asia*, Honk Kong: Asia Law & Practice Publishing Ltd.

² There are many similar methods to BOT such as BOO (Built-Operate-Own) and BLT (Built-Lease-Transfer). The difference between them depends on the

degree private firms manage and operate infrastructure projects.

- ³ See IFC [1999], *Project Finance in Developing Countries*, IFC Lessons of Experience 7, Washington D.C.
- ⁴ See Fujiwara, J. (ed.) [1998], *Asian Infrastructure* (in Japanese), Keio University Press.
- ⁵ See Ministry of Foreign Affairs of Japan (MOFA) [1998], *Japan's ODA Summary 1998*.
- ⁶ Technological assistance aims to make investment more efficient. In case of the power plant, technology to reduce the waste during transmission and know-how to collect charges efficiently are examples.
- ⁷ The share of accumulated amount loans in different countries are as follows: Indonesia (¥3.147 trillion), China (¥2.054 trillion), India (¥1.914 trillion), Thailand (¥1.518 trillion), and Philippines (¥1.469 trillion).
- ⁸ In the case of the power plant construction by BOT, for example, additional facility, such as distribution, can be purchased by ODA.
- ⁹ For more detailed discussions, see IDCJ [1999], *PFI in the Philippines and Thailand* (in Japanese).
- ¹⁰ As a trouble related to country risk, there is an example of the construction of highway in Thailand. In determining the charges, the Japanese firm and Thai government did not reach an agreement, and the former retreated from the projects. They did not expect such behavior on Thai government's part.
- ¹¹ In this section, we use the word 'PFI,' since we discuss about Japanese case in it.
- ¹² See Economic Planning Agency (EPA) [1998], *Economic Survey of Japan 1998*, for example.

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