Issues Concerning the Current Tendering and Contracting Systems for Public Works

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1. Introduction

Parties that order public works owe "responsibility to procure goods and services with as high quality as possible, at as low a price as possible, in a timely manner, while maintaining fair trade" *(Interim Report of the Research and Discussion Committee on the Responsibilities of Ordering Parties, April 1999)*. To this end, ordering parties are required to effectively employ various types of tendering and contracting systems. This can be achieved by adapting the different combinations of evaluation factors of successful tenderers, competing conditions, work areas assigned to builders, etc., in accordance with the characteristics of individual public works. Particularly in cases where a high level of knowledge and skills are required for the work and technological development is expected of the builders, evaluation of the quality of the work and the level of skill of the builders, in addition to a comparison of prices, becomes very important.

In this article, the unique characteristics of the current Japanese systems for tendering and contracting for public works will be identified first. These systems will be explained as cause of the high costs and the unclearness of existing builder selection procedures. Next, the scandals in public works in recent years have triggered the introduction of various types of new tendering and contracting systems, aimed at establishing fair procedures and ensuring the high quality of works as well as reducing costs. The current status of adopting these systems will be described, together with the possible problems inherent in each system. Many of these tendering and contracting systems are in fact too new to show sufficient examples from actual cases. Therefore, it may actually be too early to determine which kind of system is appropriate for each type of public works. This article seeks to identify the problems facing these systems at present, including some examples of the systems whose introduction has made little progress despite initial expectations.

2. The Unique Characteristics of the Tendering and Contracting Systems for Public Works in Japan

The Public Accounting Law, which has been revised several times since its establishment in 1889, still works as the primary principle to regulate the current tendering and contracting systems in Japan, while the Budget, Settlement of Accounts and Accounts Regulations regulate operation of the systems. Procurement systems for local governments follow the national system and are regulated by the Local Autonomy Law and the Local Finance Law, while their operation is governed by the Enforcement Order of the Local Autonomy Law. Characterized, for

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example, by the Law on Ensuring the Receipt of Orders from the Government and Other Public Agencies by Small and Medium Enterprises, management status evaluation and a ranking system, the tendering and contracting systems in Japan display unique features which cannot be seen in other countries. In the following section, these features will be discussed, with reference to Kanemoto and Kidokoro (1999), the Research and Discussion Committee on the Responsibilities of Ordering Parties (1999), and other articles.

(1) Inflexibility

The rigid systems of tendering and contracting for any procurement items in Japan have hardly changed since the Meiji Period (1868-1912). They are inflexible systems where the regulations of the Public Accounting Law and the Budget, Settlement of Accounts and Accounts Regulations are applied obdurately for all cases. Also, the Public Accounting Law permits no contracting method other than open tendering, selective tendering and free contract. Although some flexibility is within the orderer's discretion in practice, the legal system does not allow flexible application of the tendering and contracting systems in order to accommodate the characteristics of varying procurement items.

(2) Predetermined Estimated Price System

A "Predetermined (estimated) price" is a limit on a price at or below which the ordering party is willing to pay for a specific public work project. The orderer estimates and sets this price limit for the project under specific construction conditions. In Japanese practice, such predetermined estimated prices are strictly applied and kept to, placing a ceiling on bidding prices. If all bidding prices exceed the predetermined price, the ordering party must take one of the following measures: 1) to repeat tendering by the same parties until at least one price reaches the predetermined price or lower; 2) to select another group of parties and have them tender; 3) to negotiate with a tendering party with the lowest price to reduce its price further to the predetermined price or lower for the contract.

Under the Public Accounting Law, the ordering party is obliged to keep the predetermined price confidential. This practice, however, has changed slightly in recent years. In some cases, the predetermined price is disclosed after the contract is finalized, intending to improve the accuracy of estimation, while some local governments and

Chart 1. Degree of Competition in the Market and Implications of Advance Disclosure of the Predetermined Price

Degree of competition	Ceiling price	Predetermined estimated price		
		Without advanced disclosure (without leakage)	Without advanced disclosure (with leakage)	With advanced disclosure
Sufficient competition	With ceiling price	Contract price determined by competition	Contract price determined by competition	Contract price determined by competition
	Without ceiling price	Contract price determined by competition	Contract price determined by competition	Contract price determined by competition
Insufficient competition	With ceiling price	Contract price determined with the predetermined price as the upper limit	-Contract price may reach too close to the predetermined price. - Illegal contacts to gain knowledge of the predetermined price may be induced.	Contract price may reach too close to the predetermined price.
	Without ceiling price	Contract price may go up uncontrollably. (Technical negotiations are necessary.)	Contract price may go up uncontrollably. (Technical negotiations are necessary.)	Contract price may go up uncontrollably. (Technical negotiations are necessary.)

Source: Interim Report of the Research and Discussion Committee on the Responsibilities of Ordering Parties, page 20

government-affiliated corporations have disclosed the predetermined price beforehand, hoping to deter the movement to illegally seek it.[1)]

Advance disclosure of the predetermined price has different implications, depending on whether a sufficient degree of competition exists among the bidding parties or not. Specifically, when competition is not intensive enough (when the receiver of the order is chosen through collusion or other illegitimate negotiations, for example), the predetermined price disclosed beforehand can be abused as the target price for the actual contract.

Some people argue, for example, when negotiations are possible in the bidding procedure, such negotiations, along with flexible operation of the predetermined price as a ceiling price, are likely to eliminate unreasonably high bidding prices.

The current system is superior in order to ensure benefits for the ordering party, provided that the predetermined price is set properly and information leakage and other illegal conduct are completely prevented. In order to effectively apply various tendering and contracting methods that correctly reflect the skills and expertise of tendering parties, however, the current system is not always appropriate, under which the predetermined price is uniformly undisclosed and set as the upper limit without any exceptions. When the new procedures, such as advance inspection and technical negotiation, are introduced, these practices need to be re-examined.

(3) Competition based solely on pricing

For the procurement for public works in Japan, whether conducted through open tendering or selective tendering, the decision is made solely by comparing the tender prices. Except for the goods or service whose performance is critically important for decision-making (e.g., super computers), a comprehensive evaluation is not carried out in principle. That is, technical expertise, as well as the quality of the goods and services, is not included in decision-making factors. Therefore, when trying to fulfill the "responsibility to procure goods and services with as high quality as possible, at as low a price as possible, in a timely manner," the Japanese procurement system is disadvantaged because of its inability to take the quality of work into account. The only exception to this is seen in the tendering for public works under comprehensive consultations with the Finance Minister. Since fiscal 1999, ordering parties have been allowed to evaluate the technical and quality levels as well as the prices submitted by tendering parties in order to make decisions for the procurement of this kind of public works.

(4) Large discretionary power on the administration side: selective tendering

While the Public Accounting Law specifies open tendering as the principal method for public work procurement, the *de facto* principle, especially practiced by local governments, has been selective tendering, which is actually permitted only for exceptional cases in the Law.

Chart 2. Rate of Open Tendering Introduced in Public Work Procurement (as of March 31, 2002)

		Full implementation		Trial implementation		Non-implementation	
National Government		19	100.0%	0	0.0%	0	0.0%
Government-affiliated corporations		36	90.0%	2	5.0%	2	5.0%
Local goverment	Prefectures	47	100.0%	0	0.0%	0	0.0%
	12 major cities	12	100.0%	0	0.0%	0	0.0%
	Other municipalities	574	17.8%	348	10.8%	2307	71.4%
	Subtotal	633	19.3%	348	10.6%	2307	70.2%
Total		688	20.6%	350	10.5%	2309	69.0%

Source: The Minister of Land, Infrastructure and Transport, the Minister of Public Management, Home Affairs, Posts and Telecommunications, and the Minister of Finance. On the Survey on the Act for Promoting Proper Tendering and Contracting for Public Works and Guidelines for Proper Tendering and Contracting for Public Works. September 27, 2002

1)Some point out that the disclosure of the predetermined price before bidding may have various adverse effects; to encourage collusive bidding, or to make the rate of successful bids reach absurdly close to 100% because the bidding parties may give up making appropriate estimations.

One problem of selective tendering is that the standards and reasons for selecting companies are unclear, so that the discretional power of the ordering party is too great.

However, an open tendering system, which can provide more transparent procedures and has better objectivity with little room for the ordering party's discretion, also has some disadvantages. For example, it is difficult to prevent low-quality and disqualified builders from tendering, and as a result, it can be difficult to maintain a high quality level of tendering parties. The builders with lower tender prices could do only poor quality work or additional charges for design changes might be billed to the orderer too frequently. In addition, open tendering requires an increased amount of evaluation work by the ordering party, especially when a large number of builders submit bids. Also it is not suitable for providing incentives to builders to maintain high quality works, because the achievements of previous works cannot be reflected in the selection procedure for a future tendering.

Selective tendering, which is said to be more effective for selecting high quality builders, also has other problems. When selections are made mechanically based solely on objective data, low quality and disqualified builders may be selected as candidates. In addition, selection standards can be set up based on an arbitrary decision of the ordering party, and the limitation on the number of tendering parties tends to attract bid rigging.[2)]

Chart 3. Advantages and Disadvantages of Open Tendering and Selective Tendering

<table>
<tr><th>Type of tendering</th><th colspan="4">Effect</th><th>Advantages</th><th>Disadvantages</th></tr>
<tr><td>Open tendering</td><td rowspan="3">Broad
↑
Range of participants in competition
↓
Limited</td><td rowspan="3">Difficult
↑
Arbitrary selection by an ordering party
↓
Easy</td><td rowspan="3">Difficult
↑
Exclusion of low quality and disqualified builders
↓
Easy</td><td rowspan="3">Difficult
↑
Giving incentives to builders to maintain high quality work
↓
Easy</td><td>- Broad range of participants increases the level of competition and enables more economical procurement.
- Arbitrary selection by an ordering party can be easily prevented.
- Environment can be created to curb bid rigging.</td><td>- Difficult to exclude poor quality or dishonest builders.
- Workload of tender evaluation increases.</td></tr>
<tr><td>Open-type selective tendering</td><td colspan="2">In "open-type selective tendering," after tendering parties are publicly invited, selection is made based on the technical information submitted by these parties, including construction experience and names and background of prospective technicians in the project.</td></tr>
<tr><td>Selective tendering</td><td>- By selecting candidates from high quality builders, ordering parties can ensure the high level of public works.
- Desire to be selected in the next tender can be a good incentive for builders to maintain and improve the level of their work.
- Workload of tender evaluation can be reduced.</td><td>- An ordering party may select a builder arbitrarily.
- Limiting the number of tendering participants by appointment tends to attract bid rigging.
- High quality builders who do not have a substantial record of work for the ordering party have less chance to participate in the tendering.</td></tr>
</table>

Source: Interim Report of the Research and Discussion Committee on the Responsibilities of Ordering Parties, page 14.

2)In many countries, comparisons between open tendering and selective tendering have been made by trial and error in order to determine which is the better method when taking into account both the cost and quality of public works. No conclusion, however, has been reached yet. While some who stress the importance of transparent processes support open tendering with performance bonds, others who value the achievement of the work most favor selective tendering. The former view can be seen in Maeda (1987), and the latter in Kunishima (1995). The debate between the two can be seen in the article "Sunday Nikkei Chocho Hasshi (hot argument)" in Nihon Keizai Shimbun (May 23, 1993).

As previously stated in (2), when all of the tender prices are higher than the predetermined estimated price, one action that the ordering party can take is to negotiate with a particular tenderer individually and force a reduction in the contract price below the predetermined one (the third option above). That can happen only because the ordering party has a power of discretion to appoint bidders in the next selective tendering. The selected builder then will be forced to accept the order with an unreasonably lower price, should it want to remain on the list of candidates for the next tendering.

In the current system of selecting a builder, whether it is conducted through open tendering or selective tendering, the selected builder is not necessarily the one who can provide the best quality among those tenderers. That is, when more than one tenderer can offer at least the lowest quality level of works the ordering party requires at a cost within the predetermined price, the tenderer who offers the lowest price is automatically selected regardless of the quality of work it can offer. In order to improve the quality of public works and to promote participation by superior builders, a more comprehensive selection method based on both the cost and the quality of the work should be implemented.

(5) Segregation of builders' specializations through a ranking system and management status evaluation

Japanese builders are restricted on the size of works (based on contracting price) that they can undertake, according to the ranks given to them based on their operational sizes and technical capabilities. The basis for this ranking is a Management Status Evaluation, which grades each builder according to a number of management indicators, including the average annual amount of completed works for each type of construction, the amount of equity capital, the number of employees, the number of technicians in each area, labor welfare status, safety records from previous construction works, the rate of ordinary profit in completed works and the ratio of equity capital. Among these, the amount of completed works has great weight. The ordering party gives a rank (from A to E) to the builder according to these indicators as well as its own subjective criteria such as construction work performance. This system prohibits the builders from participating in works accorded a different rank, not only works in a higher rank but also in a lower rank. That is to say, the ranking system facilitates segregation of builders' niches and restricts competition among them.

(6) Protection of local small and medium enterprises

i. Split orders

Local governments often split a construction project into smaller segments and put work out to tender for each of these segments as a way of protecting small and medium enterprises local to the area. While a large size of project can be taken only by high-ranking builders, if it is split into smaller segments, smaller local builders of low rank can have opportunities to receive the order. Splitting the work, however, may result in higher construction costs, for bulk ordering of materials and the effective use of construction machinery become impossible.

ii. Joint venture (JV) system

The original purposes of the joint venture system are to break up the risk in large-scale works, to improve the quality of the work by bringing each builder's favorite technique together and to increase financing opportunities. Specifically in public works by local governments, however, the JV system is often used for other purposes: mainly to "activate small and medium enterprises" and "ensure business opportunities for small and medium enterprises." In some cases, the ordering party specifies the establishment of a JV that consists of dozens of companies of different sizes—from leading general contractors to smaller ones. There are even some contractors who, participating in a joint venture, outsource the work, either to a smaller or larger builder, and make margins without conducting any actual work themselves.

iii. Geological requirements

In some cases, particularly in selective tendering for public works by a local government, one of the requirements for tendering participants is to have a head office or a branch office in the relevant local area. This

requirement works as an obstacle for major construction companies and builders based in other regions, and, as a result, the work might not be undertaken by any builder more competent for skilled work than local enterprises.

iv. Public Agency Order Law

The Law on Ensuring the Receipt of Orders from the Government and Other Public Agencies by Small and Medium Enterprises (the Public Agency Order Law), which was established in 1966, functions as additional force to facilitate the protection of small and medium enterprises.[3)] Although the original purpose of the Law, as laid down in its Article 1, is to "ensure opportunities" for small and medium enterprises to receive orders, every year a target figure (a ratio of orders given to small and medium enterprises) is set following a supplementary resolution passed at the time of the establishment of the Law. Starting at 26.8% at the time of enactment, the targeted ratio has been increasing annually since the Oil Crisis in the early 1970s. In the last half of the 1980s, the ratio reached around 40%, and the increase continued in the last half of the 1990s. In fiscal year 2002, the target share for orders received by small and medium enterprises in the total amount of orders offered by governments and public agencies was decided by the Cabinet to be 45.2%. That is, the Public Agency Order Law has turned into a law that aims at ensuring the "result" of the orders received by these enterprises, as well as ensuring "opportunities" as originally intended.

(7) Construction completion guarantor system

The construction completion guarantor system ensures the completion of public works without additional payment by public entities, in case the contractor cannot complete the work. Under this system, another company is assigned as a guarantor to finish the work in the original contractor's stead. This system also functions as a threat to builders because anyone who would not join in bid rigging practice could not find a guarantor. Thus, some point out that the system fosters bid rigging activities. As a result, it was abolished for public works by the national government at the end of fiscal 1996, and the performance guarantee system was introduced instead. Although the abolishment or review of the construction completion guarantor system has also been promoted in local governments, the progress is not satisfactory. According to a report "*On the Survey on the Act for Promoting Proper Tendering and Contracting for Public Works and Guidelines for Proper Tendering and Contracting for Public Works*" published by the Minister of Land, Infrastructure and Transport, the Minister of Public Management, Home Affairs, Posts and Telecommunications and the Minister of Finance on September 27, 2002 (based on data as of March 31, 2002), only 85.2% of municipalities (governments of cities, wards, towns and villages except for the 12 major cities designated by government ordinance) have completely abolished the system, while as many as 4.8% of the total municipalities still "have no plan to abolish" it.

(8) Minimum price

Local governments often set a minimum price. Builders who submit a tender price below this limit will automatically lose the right to participate in the competition. Although the main purpose of this system is to prevent excessive price competition which might encourage shoddy work, in reality it is impeding the incentive of builders to reduce their charges.

The national government employs a "reviewing system for tenders with a low price" instead. Under this system, tenders below a certain price are reviewed as to their capability to actually complete the required work at the proposed price. If it appears likely that the required level of work could not be achieved, the tenderer will be eliminated from the bidding.

3)The current issues about split orders by local governments to protect small and medium enterprises in local areas based on the Public Agency Order Law are reported by some media, including a "Sunday Nikkei Scoop" article in *Nihon Keizai Shimbun* on August 25, 2002. Since acquiring an operation license is relatively easy for construction business, many construction companies, trying to secure order opportunities, establish "ghost companies" in various ranks. As a result, the number of construction companies in Japan has been increasing while companies in other industries have decreased. As the Nihon Keizai Shimbun points out, while there are only a little over 3,000 road paving machinery units in the whole of Japan and approximately 20,000 construction management technicians, the number of road paving companies listed is as high as 90,000.

Summarizing the issues discussed above, it can be said that the high cost of public works and the unclearness of builder selection procedures originate basically from the tendering and contracting systems designed by the government (especially local governments) as the ordering parties.

3. History of Improvements of the Tendering and Contracting Systems

Japan's Construction Industry Act was promulgated in 1949, and based on that Law, a Central Council on Construction Business ("*chukenshin*") was established in 1950 as an advisory body to the Minister of Construction (currently the Minister of Land, Infrastructure and Transport).

The Council has proposed suggestions for issues concerning tendering and contracting systems for public works several times since 1993, when many corruption cases related to public works were discovered. Since then, efforts have been made to improve the situation. Responding to a proposal by the Council in December 1993, the Ministry of Land, Infrastructure and Transport (MLIT) has employed an open tendering system for any construction work larger than a certain scale since fiscal 1994, while making continuous efforts to improve the current selective tendering system. Also, in response to a Council proposal in February 1998, new systems that can effectively utilize the skills of the private sector according to the type and degree of difficulty of the construction, e.g., a Comprehensive Evaluation Tendering System, a Blanket Ordering System for designing and building, and a Value Engineering (VE) System, have been promoted, with an aim to facilitate the competition not only by the cost but by the skills offered by the builders. In addition, an Ordering System with Performance-Based Prescription has been utilized for paving works since fiscal 1998. These are examples of efforts taken to reduce the costs of public works through effective use of the private skills, while maintaining both the functions and quality of the objects of the works. In April 2001, the Act for Promoting Proper Tendering and Contracting for Public Works (the Act for Proper Tendering and Contracting) was enacted, and the guidelines based on the Act also asked for the introduction of diverse tendering and contracting systems that can fully utilize private skills and technologies. The Report by the Exploratory Committee for the Measures for the Proper Tendering and Contracting for Public Works of March 27, 2002 states that the Committee recommends the Comprehensive Evaluation Tendering System as one of the measures towards a proper diversity of systems. The MLIT has decided to employ the Comprehensive Evaluation Tendering System for 20% (in monetary terms) of its direct-ordered construction works planned for fiscal year 2002.

December 1993: Central Council on Construction Business submitted a proposal "On the Reform of Tendering and Contracting Systems for Public Works".
April 1997: "Action Guidelines for Measures to Reduce the Cost of Public Works".
February 1998: Central Council on Construction Business submitted a proposal "On the Direction the Construction Industry Should Aim at in Order to Cope with the Structural Changes in the Construction Market."
April 1999: The Research and Discussion Committee on the Responsibilities of Ordering Parties published its "Interim Report."
April 2001: The Act for Promoting Proper Tendering and Contracting for Public Works was enforced.
March 27, 2002: Report by the Exploratory Committee for the Measures for the Proper Tendering and Contracting for Public Works was submitted.

The term, "diverse tendering and contracting systems", does not imply the adoption of one specific ordering system, but rather means to change the combination of evaluating factors (e.g., prices and technical skills), competing conditions (e.g., open tendering and selective tendering) and the range of works required to the builder (e.g., construction only or both design and construction) according to the details of the work. For example, either a Comprehensive Evaluation Tendering System with VE at the time of tendering, or a Comprehensive Evaluation Tendering System with blanket ordering for both designing and building can be employed. It is also possible that with blanket ordering for both designing and building the decision will be made based only on the prices. Currently, public works are in a phase where various combinations of tendering and contracting systems are employed according to the detail of the work required, and the most effective way is being sought through process of trial-and-error.

Chart 4. Status of Approaches to Diverse Ordering Systems by the MLIT in Fiscal 2001

Selection Factor	Ⅰ	Ⅱ	Ⅲ
Evaluation factor for builder selection	Price only	Price and other factors (Comprehensive Evaluation)	—
Competition Condition	Open tendering (including conditional open tendering)	Selective tendering (including open-type selective tendering)	Free contract
Range of works required of builders	Construction only	Construction and technical advice	Design and construction
Ordering prescription	Specification-based prescription	Performance-based prescription	—
Contract system(1)	Bulk contract	Construction management (CM) (Separate Ordering)	Direct management
Contract system (2)	Total-cost contract	Total-cost and unit-cost agreement contract	Unit-cost contract
Items submitted at the time of tendering	Tender price only	Tender price and itemized statement	—
Method to evaluate the technical skills of tender participants for qualification screening	Construction work experience	Construction work experience and construction work performance	—
Method of payment	Advance payment and final payment	Advance payment and partial payment	Partial payment only
Range of initial contract	Whole work	Advance order for main items	—
Ordering party's grasp of the information about subcontract status	No involvement in the contract status between the direct contractor and subcontractors	Information about the contract between the direct contractor and subcontractors is provided in advance.	Balance of income and expenditure is known on settlement base.
Involvement in the construction system	Construction system is left to the builder.	Status of construction system is included in the contract conditions.	—
Setting the term of works	Orderer decides the term.	Contractor has flexibility in the term. (Flexible work term)	—
Development of new techniques	Conventional construction techniques are applied.	Construction techniques are specified.	Contracts are freely made with specific companies.

Note: Items in the shaded cells indicate the ordering methods that have been practiced conventionally.
Source: Japan Construction Information Center, *JACIC Joho*. No.66, page 11.

Chart 5 shows the number of construction works ordered by the Ministry of Land, Infrastructure and Transport according to the types of various tendering and contracting systems. While the number of works that use these unconventional systems has been increasing, it is still very small compared with the total annual orders by the Ministry (18,000). It can be said that transition towards these new systems has just started.

4. The Current Status of Introducing Various Tendering and Contracting Systems and Issues Concerning Each System

(1) VE (Value Engineering) Systems

Under VE (Value Engineering) systems, the ordering party receives the builders' technical suggestions in order to make much of the builders' technical skills at the time of tendering and contracting. "At-the-time-of-tendering VE" requires tenderers to submit a proposal for the improvement of construction methods and other techniques at

Chart 5. Implementation of Various Tendering and Contracting Systems by the National Government
(Works covered by eight Regional Development Bureaus of the Ministry of Land, Infrastructure and Transport)

Fiscal year	1997	1998	1999	2000	2001
VE at the time of tendering (the number of construction projects)	35	17	20	14	52
(Among the above cases, the number of projects where changes in construction objects were required.)	—	—	3	10	8
VE after contracting (the number of construction projects)	101	134	282	320	1,524
Comprehensive evaluation tendering system	—	—	2	5	34
Blanket ordering system for designing and building	2	1	1	4	14
Ordering system with performance-based prescription	—	2	14	28	53
System that effectively utilizes management techniques	—	—	—	—	4

Note: The same construction project may be counted more than once for different systems.
Source: Japan Construction Information Center, *JACIC Joho*. No.66. page 26.

the time of tendering, while under "after-the-contract VE" only the successful contractor submits a proposal after tendering and a certain portion of construction costs saved by the proposal will be passed on to the contractor. The range of areas covered by VE systems has been expanded to include the designing process.

Chart 6. Types of VE systems

System		Method	Applicable type of construction project
Design VE	—	VE is studied by several engineers from different sectors, including specialists in construction techniques, as needed.	Design of a new large-scale structure
At-the-time-of-tendering VE	Price competition type	Technical proposals are evaluated, and qualifications to participate in the competition and ability for tendering based on the proposal are determined.	Construction projects that meet the following conditions: special techniques for the construction and building methods are required; technical development has rapidly progressed among the private sector for projects; and successful proposals to reduce the cost can be expected.
	Comprehensive evaluation system	After technical proposals and cost proposals are evaluated, the contract is concluded with the company that has submitted the most beneficial proposal for the ordering party.	Same as above. In addition, construction projects that require special attention to factors other than the costs needed for the construction.
After-the-contract VE	—	A technical proposal on construction methods, etc. that can reduce the costs is submitted after the contract, and the proposal may be used for design changes if adopted.	Designated construction methods, etc. for a specific construction.

Source: Interim Report of the Research and Discussion Committee on the Responsibilities of Ordering Parties, page 26

Viewed from the principle "to procure goods and services with as high quality as possible, at as low a price as possible in a timely manner," a technical evaluation system and/or a comprehensive evaluation system are considered effective, under which both the quality and the cost of the works are taken into consideration during the builder selection procedures. In addition, if a scheme that effectively uses technical skills in the private sector is adopted, builders will have incentives to maintain and improve the quality of their works under these systems.

According to Charts 5 and 7, while the number of public works that employ VE systems (both at-the-time-of tendering VE and after-the-contract VE) is increasing at the national level, these systems have hardly been adopted at the municipal level (except within the 12 major cities). Besides, even in cases where there are VE clauses in contracts, only a few contractors seem to submit a proposal; and the cases where the proposal is actually adopted

Chart 7. Current Status Implementation of VE System (Upper: At-the-time-of-tendering VE. Lower: After-the-contract VE. Figures as of March 31, 2002.)

		Full implementation		Trial imprementation		Non-implementation	
National Government		6	33.3%	1	5.6%	11	61.1%
Government-affiliated corporations		7	17.5%	12	30.0%	21	52.5%
Local government	Prefectures	16	34.0%	9	19.1%	22	46.8%
	12 major cities	7	58.3%	2	16.7%	3	25.0%
	Other municipalities	24	0.7%	201	6.2%	3004	93.0%
	Subtotal	47	1.4%	212	6.4%	3029	92.1%
Total		60	1.8%	225	6.7%	3061	91.5%

		Full implementation		Trial imprementation		Non-implementation	
National Government		6	33.3%	2	11.1%	10	55.6%
Government-affiliated corporations		14	35.0%	10	25.0%	16	40.0%
Local government	Prefectures	26	55.3%	6	12.8%	15	31.9%
	12 major cities	8	66.7%	1	8.3%	3	25.0%
	Other municipalities	8	0.2%	207	6.4%	3014	93.3%
	Subtotal	42	1.3%	214	6.5%	3032	92.2%
Total		62	1.9%	226	6.8%	3058	91.4%

Source: The Minister of Land, Infrastructure and Transport, the Minister of Public Management, Home Affairs, Posts and Telecommunications, and the Minister of Finance. On the Survey on the Act for Promoting Proper Tendering and Contracting for Public Works and Guidelines for Proper Tendering and Contracting for Public Works. September 27, 2002

seem even scarcer.

As one reason for the low number of proposals under the VE systems, builders point out that they can hardly understand the real needs of the ordering party since no information except a construction drawing is provided by the orderer. If the orderer really wants to receive helpful proposals from builders, it must specify its intentions about the functions and performance levels of the structure. Another concern, typical at the stage of trial and error, is that there might be few in the ordering party able to correctly evaluate the advanced technical proposals submitted by builders. It will gradually diminish, however, as the both parties gain more experience and actual results. On the other hand, the number of builders who would rather not take time to prepare a proposal may not be insignificant, since there is no guarantee that their efforts will be paid back by being selected as the successful tenderer.

i. Problems concerning the planning of institutional arrangements

In addition to the lack of motivation and experience of both ordering and tendering parties as described above, Kanemoto and Kidokoro (1999) summarized problems concerning institutional designing in especially after-the-contract VE system as follows.[4)]

For public works ordered in Japan, the government pays the final tendering price to a successful bidder, but

4)From an economic point of view, after-the-contract VE is considered as a kind of incentive contract. In a typical incentive contract, however, the ordering party absorbs a certain proportion of the difference between a target cost and the actual cost. That is, the ordering party explicitly bears its share of risk (for example, the builder who shows the lowest target price will be selected). In that sense, it can also be a defect of the system because the incentive of the successful bidder to reduce the costs is hindered by the fact that they need to bear only a proportion of the price increase. Also, while under a regular incentive contract the ordering party needs to be able to know the exact amount of the actual costs, the reduced amount shown under after-the-contract VE system is only an estimate and not the amount of costs actually reduced.

stays out of the decision about how the contractor spends the payment. The contractor, therefore, can take up the whole amount of the costs saved by its own efforts as long as the complete project meets the design requirements indicated by the ordering government. In this case, the builder would not have any incentive to submit a VE proposal.

The successful bidder, however, at least has an obligation to complete the construction as designed. If reducing the cost requires a change in design, the builder needs to acquire permission from the ordering party. After-the-contract VE uses this regulation and allows the ordering party to require the builder to pay a proportion of the costs it could save by the design change. That is to say, it is not actually a system under which the ordering party gives a certain proportion of the reduced costs to the builder, rather a system where the ordering party, using its authority to permit, makes the builder to pay a certain proportion of the costs saved by the change.

ii. Problems concerning management status evaluation and auditing

In addition to the problems concerning institutional designing as discussed above, Watanabe (1999) claims that there are also the problems of external factors in institutional operations; for example,the ways that management status evaluation and auditing are carried out.

The key management targets for corporate managers who engage in public works are to obtain a high ranking and to achieve a large amount of completed works (in terms of monetary value). A high ranking often results in a high achievement of completed works, while ranking is made based on management status evaluation that lays substantial weight on the amount of completed works. Under the circumstances where the monetary amount of completed works is valued, the competence of a manager at the original contractor company tends to be measured by how much additional charges he can make up through a series of design changes. If the final cost was decreased through VE systems, for example, his personal score in promotional evaluation would go down. Therefore, effective implementation of the after-the-contract VE system based on the ingenuity and creativity of builders cannot happen easily. Thus, management status evaluation, which highly values the financial value of completed works, seems to have been one of the factors that are hampering the implementation of after-the-contract VE system intended to reduce the total cost of construction works.

Another problem is the overreaction of the construction companies against government auditing. A construction project basically consists of two parts: temporary work and permanent work. For a certain part of temporary work, referred as “optional temporary,” the builder has the right to freely choose the materials and construction methods. In government auditing procedures, however, all the information on the construction plan, specifications, and details of cost estimations are sometimes very closely investigated. This can lead to an excessive reaction by the ordering parties against such auditing; they often treat “optional temporary” and “quasi-designated temporary work” (where design changes through VE are allowed) as if no change by the builder is allowed, or the contractors implicitly believe so. As described above, the way the government auditing has been conducted, as well as the overreaction by the ordering parties to it, is considered to be one of the reasons why the after-the-contract VE system has not been used often enough.

VE clauses are sometimes included in contracts in the U.S. Many proposals, however, seem to be of an insignificant level. Even though VE clauses exist in form, they are meaningless unless a designer actually makes a change. Also, designers sometimes sacrifice structure for their design tastes. In such cases, proposals for cost reduction should be submitted at the time of tendering. Those companies that submit cost reduction proposals after a successful tendering are more likely to be dishonest companies, for changing the design leads to higher costs. In the U.S., it is said that VE clauses are rarely activated to realize an actual cost reduction.

(2) Comprehensive Evaluation Tendering System

Under the Comprehensive Evaluation Tendering System, after the ordering party requests tenderers to submit technical proposals on the construction sections, the selection of the contractor is made through a set of comprehensive criteria applied to the proposals, which includes not only prices but also technical skills and the quality of the work they can provide. In this case, a tenderer that submits the lowest price is not necessarily

selected as a successful contractor.

The Ministry of Land, Infrastructure and Transport scheduled to adopt the Comprehensive Evaluation Tendering System for 20% (financial value) out of the total orders planned for its direct construction projects in fiscal 2002 (see Chart 5).

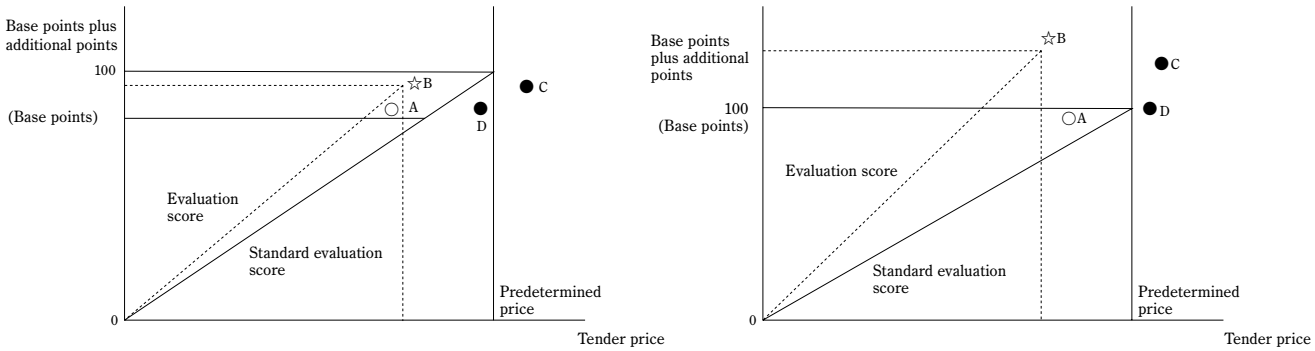
i. Current method of evaluation

The comprehensive evaluation score is calculated by dividing the total points that the tenderer earned from each of the evaluation items (e.g., performance) except prices by the total amount of the tendering price and other costs. The standard formula to calculate an evaluation score is:

Example: A case where only construction cost and performance are evaluated;[5)]
Comprehensive evaluation score = (Base points + Additional points) / Tender price.

In this calculation formula, "Base points" mean the points (up to 100) the tenderer earns for each required technical item that meets the minimum requirement level by the ordering party. "Additional points," in contrast, refer to the points the tenderer earns according to the evaluation for the technical items that the ordering party requests as needed.

Chart 8. Evaluation Methods in Comprehensive Evaluation Tendering System



"B" is selected. "C" price is higher than the predetermined price.
"D" score is below the standard evaluation score.
a: Target condition = 100 points > Base points

"B" is selected. "C" and "D" prices are higher than the predetermined price.
b: Target condition = 100 points = Base points

ii. Operational issues

As clearly indicated in the calculation formula for the comprehensive evaluation score, when there is not a large difference in the levels of technical proposals among the tenderers, the tender price (the denominator) decides the score in most cases. Currently, certain points are added as the additional points (xx points for every hour of road closure shortened, for example). However, according to a survey by the Japan Civil Engineering Constructor's Association, Inc., which studied about 20 construction projects, the evaluated points for technical skills (the proportion of additional points) accounted merely for around 9% on average.[6)] As long as the difference the technical proposal makes is only 10 points at most, the current system of comprehensive evaluation tendering cannot be greatly different from a price tendering system. Unless the range of a technical proposal is expanded or the proportion of technical evaluation is increased, builders will not have any greater incentives to submit a technical proposal. To this end, changing the way to weigh the additional points from the current division-based

5)Other cases may include:
- Where only construction cost and other costs are evaluated: Evaluation score = 100 (Base point) / (Tender price + Other costs)
- Where construction cost, other costs, as well as performance, etc. are evaluated: Evaluation score = (Base points + Additional points) / (Tender price + Other costs)

6)Source: Japan Construction Information Center, *JACIC Joho*. No.66, page 16.

system to an addition-based system may prove to be an effective idea.[7)]

Another difficulty inherent in the current system can be seen in the ceiling effect caused by the predetermined price: one of the prerequisites for a successful tenderer is to set the tender price within the range of the predetermined price. Thus, even when the ordering party acknowledges that a far better quality of construction can be acquired with a slightly higher price, no such plans will be adopted if their tender prices exceed the predetermined price.

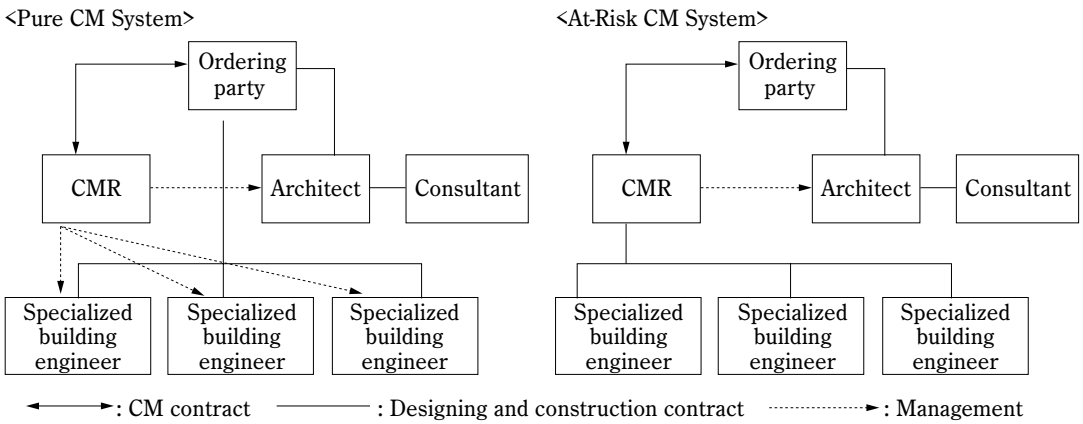
(3) CM (Construction Management) System[8)]

The "Blanket Ordering System" has many advantages for ordering parties, because the original contractor takes the risks for the whole project (by maintaining the term of work, securing quality, etc.). On the other hand, the ordering party is not informed about the ordering processes and amount of payments made between the original contractor and the subsidiary companies that undertake the actual work. The ordering party is not, therefore, able to confirm whether the quality, the term of work, and costs are correctly optimized.

Under the CM system, all the management work for which architects and builders have traditionally been responsible are uniformly entrusted to a company appointed as Construction Manager (CMR). The CMR functions as an assistant and agent to the ordering party, who carries out business operations on the orderer's side, while maintaining a neutral standpoint in technical matters. The risk the original contractor (a general contracting company) solely bears under the Blanket Ordering System is shared in the CM system; the ordering party takes the risks regarding the completion of the whole construction, while each builder (specialized engineering companies, etc.) bears the responsibility for individual works separated by categories.

There are two types of CM systems: a "Pure CM System" and an "At-Risk CM System." Under the Pure CM System, at each step of the designing, ordering and building processes, the CMR conducts all the management work on behalf of the ordering party, including construction process management, quality management and cost management. The At-Risk CM System appoints the CMR itself as a contractor for the project, and the CMR takes the risks and responsibility of the project besides carrying out the management work.

Chart 9. The Two Types of CM System



7)This was suggested by Kazumasa Ozawa, associate professor of the University of Tokyo. (See Japan Construction Information Center, *JACIC Joho*. No.66, page 15.)

8)Among the various tendering and contracting systems at the Ministry of Land, Infrastructure and Transport, this system is distinguished as "System that effectively utilizes management techniques." See Chart 5.

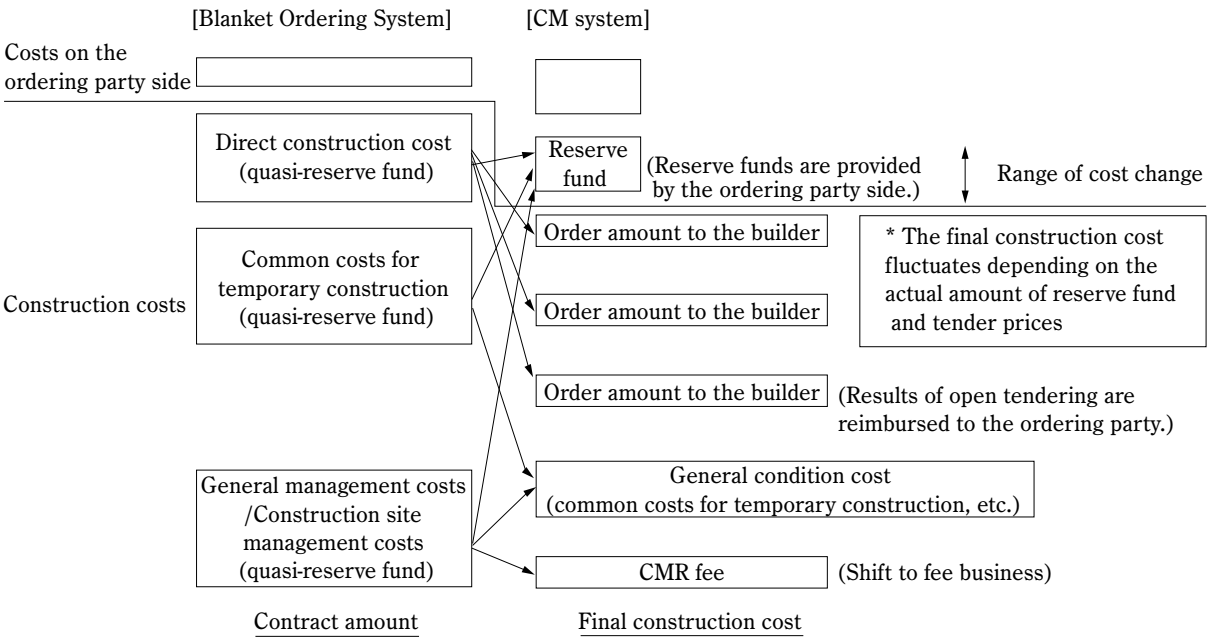
i. Purpose of the CM systems

One of the significant features of the CM systems is that the contract prices between the contractor and the actual builders are disclosed to the ordering party. As a result, compared with the Blanket Ordering System, the ordering party can grasp the cost structure more easily, which is expected to lead to more transparent transactions of public works.

According to the results of a survey carried out by the Research Institute of Construction and Economy in March 2001, covering nine states and one city as well as two federal organizations (Research Institute of Construction and Economy, 2001), the purpose of adopting the Pure CM System in the U.S. is mainly to "supplement the ordering processes quantitatively and qualitatively"; and the "reduction of construction costs" is not the primary cause. Also, the purposes of adopting the At-Risk CM System are to "shorten the construction period" and to "maintain quality management." The achievement of "cost transparency" or "cost reduction" is not always listed as the primary purposes when adopting such a system.

In both CM systems, a CM company generally operates through the designing and building steps. The CM systems, therefore, are valued for the smooth transaction of the work from designing to building. In other words, they seem to be valued as systems that can shorten the construction term.

Chart 10. Cost Structure Scheme under CM Systems



Note: The quasi-reserve fund that is included in construction costs under the Blanket Ordering System is appropriated into the budget of the ordering party side under the CM system. In public works, however, the quasi-reserve fund is sometimes appropriated into the budget of the ordering side even under the Blanket Ordering System. In that case, changes are dealt with through design change procedures.

Source: Construction Industry Promotion Division, Policy Bureau, the Ministry of Land, Infrastructure and Transport (ed.), *Guidelines for the Effective Use of CM Systems*. (July 2002) Taisei Publishing Co., Ltd., page 82

ii. The direction of Japanese-style CM systems

In Japan, it is often claimed that even under the Blanket Ordering System a general construction company, as an original contractor, in practice plays the role of the CMR in the At-Risk CM System. From the aspect of maintaining transparency, however, the At-Risk CM System largely differs from the Blanket Ordering System where a package order is given to a general construction company.

Under the Blanket Ordering System, general construction companies have discretionary rights to freely make contracts with specialized engineering companies (subcontractors). Usually, they do not disclose the contract clauses to ordering parties, nor receive instructions from them. If the CM systems reduce construction costs, it may mean that general construction companies are either conducting wasteful operations or receiving an excess amount of reserve fund under the current system.

In the United States, when a pubic work is conducted under the At-Risk CM System, the CMR is required to acquire advance authorization from the ordering party about the contracts they make with builders and materials companies. As a consequence, the discretionary rights of the ordering party in the selection of these companies can be maintained, while the contract prices are automatically disclosed. In addition, when an open-book system is adopted, the (estimated) amount of payment to the actual builders and details of other costs and fees are disclosed in invoices from the CMR to the ordering party.

If public works in Japan adopt the open-book system and a general construction company functions as a manager for the ordering party and earns legitimate CM fees, the contract amounts with the actual builders can be disclosed to the ordering party. This will enable an At-Risk CM System that is supported by high construction management skills. As has been pointed out, this aspect must be fully considered when a "Japanese-style CM system" is discussed.[9)]

Additional issues to be considered when implementing the At-Risk CM System in Japan include what kind of contract (either commission or contract) should be made between the ordering party and the CMR as well as whether the CMR should be required to acquire a construction business license designated under the Construction Industry Law.

(4) Blanket Ordering System for designing and building

i. Advantages and disadvantages of the Separate Ordering System for designing and building

In public works in Japan, a "Separate Ordering System for designing and building" has been practiced in principle; designing of the structure has been made either by the ordering party itself or by a consulting company consigned by the orderer, while a builder has been selected at the tendering through price competition based on the design drawing and specification. This system bears only a small amount of risk to both the ordering party and the builder. For the orderer, it is possible to know the level of performance and functions of the final structure in advance, and the inspection at the time of building completion is simpler. For the builder, the workload required for designing can be saved, and the costs and risks it should bear are only for the specialized building work as long as it follows the design drawing. Further, when the orders for the designing and building processes are separated, a larger number of builders who can only handle actual building works, are able to participate in the tendering process. Consequently, construction costs are very likely to be reduced through the more intensive competition among many tenderers.

On the other hand, various disadvantageous cases may emerge by the separation. The unique skills and know-how of the builder, for example, cannot be effectively used. Also, when the designing side does not have sufficient knowledge of advanced building techniques, the quality of the design will undesirably decline, and the builder may need to make modifications to cover this. The Blanket Ordering System, however, can avoid these problems because under this system the builder can make their own designs to fully use their technical skills in the project. Also, part of the building work can be started even before completion of the design process. (There remains an

9)Construction Industry Promotion Division, Policy Bureau, the Ministry of Land, Infrastructure and Transport (ed.), *Guidelines for the Effective Use of CM Systems* (pages 14-15.)

issue whether those changes should be considered as a subject for contractual alteration in a case where conditions of the design to be executed as set by the contractor are changed.) Blanket ordering is also advantageous from the orderer's standpoint, because an object with required function and performance might be obtained at a lower price. Besides, this system will contribute to the centralization of responsibilities, since the responsibility for the whole processes—from designing to building—will be born by the construction company.

Chart 11. Current Implementation Levels of the Blanket Ordering System for Designing and Building (price competition style) (as of March 31, 2002)

		Full implementation		Trial implementation		Non-implementation	
National government		5	27.8%	2	11.1%	11	61.1%
Government-affiliated corporations		3	7.5%	11	27.5%	26	65.0%
Local governments	Prefectures	7	14.9%	5	10.6%	35	74.5%
	12 major cities	1	8.3%	0	0.0%	11	91.7%
	Other municipalities	34	1.1%	231	7.2%	2953	91.8%
	Subtotal	42	1.3%	236	7.2%	2999	91.5%
Total		50	1.5%	249	7.5%	3036	91.0%

Source: The Minister of Land, Infrastructure and Transport, the Minister of Public Management, Home Affairs, Posts and Telecommunications, and the Minister of Finance. On the Survey on the Act for Promoting Proper Tendering and Contracting for Public Works and Guidelines for Proper Tendering and Contracting for Public Works. September 27, 2002

ii. Support for improvements of the ordering structure

Traditionally, leading general contractors have been supporting the design processes, because the technical skills of the ordering parties have been relatively decreasing while the consulting market has not reached maturity. As a result, the principle of separate ordering for designing and building has not been necessarily fully complied with in a strict sense. In fact, under the current situation, the design of most public projects can hardly be completed without using the expertise of leading general contractors.

Watanabe (1999) argues that a scheme to position design support by the leading contractors as a formal service and to make a reasonable payment to them should be urgently established so that the current levels of construction costs, quality and terms may be maintained and the fair execution of public works be ensured. In the middle to long term, improving technical levels on the design side is essential, while the technical level of design consultants also need to be enhanced, and legitimate support to the ordering scheme should be provided through the implementation of CM systems.

5. Conclusion: Evaluation of Ordering Parties and Budgetary Systems

In the previous sections, the issues regarding various tendering and contracting systems have been surveyed. Here in conclusion, it should be pointed out that ordering parties cannot fulfill their "responsibility to procure goods and services with as high quality as possible, at as low a price as possible, in a timely manner, while maintaining fair trade" unless a system to evaluate ordering parties is established and the structure of budgetary systems is revised.

Ordering parties will have no incentives to adopt various tendering and ordering systems unless their efforts to "procure goods and services with as high quality as possible, at as low a price as possible, in a timely manner" are positively evaluated from both within and outside the public sector. At the same time, the introduction of new technologies, active reception of proposals, and the results of cost reduction efforts should be reflected on merit rating and evaluation in personnel management.

Further, under the current budget system, it is difficult for orderers, especially in local governments, to have any incentives to make cost reductions. That is, as Watanabe (1999) points out, under "(a) the ceiling effect by predetermined prices, (b) the single-year budget system, and (c) the full consumption principle of a budget," builders "tend to undertake shady actions in order to seek out the predetermined price, including directly contacting the person in charge of ordering and relying on political pressure and connections." Also, "because of

the full consumption principle of the annual budget, the lower limit of the contracting price is virtually defined," resulting in an obstacle against proper competition among tenderers. "Especially for projects by a local government that receives aid from the national treasury, the principle of full consumption tends to be strictly followed, so it is very difficult for the person in charge of ordering procedures to have an incentive to reduce the construction costs. As long as the current systems remain unchanged, mere personal efforts by the officers at ordering parties are not enough to completely resolve the various issues concerning tendering and ordering procedures." A system to fairly evaluate orderers must be established, and, at the same time, the current framework for budgetary systems must be carefully reexamined.

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