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IMPROVEMENT OF THE PRODUCTIVITY OF THE CONSTRUCTION INDUSTRY

Public Works Performance Improvement Plan

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Executive Summary

Construction Industry has played a significant role in the age of development in Korea, and is still one of the largest industries in Korea representing more than 15% of GDP in 2007. However, the performance of public works in terms of cost and time is still challenging. Most public works experience cost overrun and fail to meet planned target completion date. Recently ministerial committee on construction industry has been launched. It is on the way to develop new improvement plan with the purpose of improving performance and adapting global standard. The committee deals with various aspects of construction industry by organizing 7 sub-committees including master plan, project delivery system, transparency, design & engineering, bonding, work classification, and public works. In this paper, the improvement plans on discussion for public works will be discussed. They are 1) Improving project owner's project management capability, 2) Establishing progress monitoring system, and 3) Improving performance management system.

1. Introduction

Construction industry in Korea is one of the pillars of domestic economy. The industry in its widest sense is likely to have an output of some 12 trillion KRW (about 12 billion dollars) in 2007, equivalent to roughly over 15% of GDP and employs around 1.9 million people. There is no doubt construction industry has significantly contributed economic growth in Korea. However, Korean construction industry is suffering with low productivity and poor performance in terms of cost and time, and low industry growth rate due to inefficient project management and over-excessive regulations those are quite different with global standards. To resolve these problems ministerial committee on construction industry has been launched in May. The committee is comprised of seven sub-committee including master plan, project delivery system, transparency, design & engineering, bonding, work classification, and public works.

In this paper, among the issues and related improvement plan those are currently being prepared, the issues and improvement plan for public works, the author is currently working on as a member of committee, will be addressed.

Public works is defined as construction projects, such as highways or dams, financed by public funds, sometimes by private funds in BOT etc, and constructed by a government for the benefit or use of the general public. Public works financed by government account for 25.4% of all construction investment in Korea in 2007.

Public's input on the process of public works and their demand on cost saving are increasing, and compared to other advanced countries, the cost invested and the time spent on the project is much higher and longer than those of similar projects in advanced countries. For these reasons, public's request to improve the performance of public works and to have systematic project management system has been emerged.

Production technology was key factor to have competency and to improve performance, but the gap between Korea and advanced countries in the area of production technology has been narrowed. Nowadays, process technology is more important factor to have global competency. However, process technology for domestic public works need to be improved. Most of all, the performance of public works should be improved to hold government accountable for taxpayers and use budget in efficient way.

2. Current Performance of Public works in Korea

There is no doubt public works have significantly contributed economic growth efficient land use, and public welfare. However, their performance is not so impressive. Among 196 public road construction projects completed after 2001, 155 (79%) projects experienced delay resulting in late completion. Ninety two projects out of 245 on going projects also are experiencing delay. The main reason of delay is insufficient budget. Half (47.5%) of all SOC projects have a problem of budget shortage. The cost occurred due to delay is 15.4% of total project cost. This cost includes increased overhead cost of both owner and contractor, escalation as project period gets longer, and loss of opportunity to use the facility to be built. Insufficient project budget keeps the project manager from planning and implementing in reasonable way. Ultimately, insufficient budget cause ineffective use of resource by causing schedule delay and increasing unit cost of facility to be built. There have

been significant efforts to improve the performance of public works. Korean government made comprehensive improvement plan for all the phase of public work process from planning to operation and maintenance phase in 1999. Some of them are effective, but some of them are not working.

3. Objective of Committee for Public Works Performance Improvement

The objectives of the committee for public works is to figure out factors affecting project performance by investigating current situation of public works and providing improvement plan to eliminate those factors or mitigate the impact of those factors. The goal of committee is to improve project performance by allocating proper budget, improving public owner's project management capability, and improving performance management system.

4. Improvement Plan

4.1 Public Owner's Project Management Capability Improvement

A. Background

In nearly all countries, central or local government, or acting through some public or semi-public organization, has an important influence on the construction industry. This occurs in a number of different ways, of which one of the most important is the effect of government actions to control the whole economy,

Among many parties involved in construction project, project owner is the key person (or organization) to lead the project success. Especially public construction project owner can lead not only the project but also construction industry. It is because public owner including central or local government, authorities, and agencies, are the biggest owner in construction industry with planning and implementing around 40% of domestic construction market, and have a power as rule maker in game.

According to recent survey on construction experts in Korea, owner's project management ability is not satisfactory and not enough to lead the project success. They scored 68 out of 100. There have been great efforts to improve the abilities of contractor, designer, and other parties in construction project. However, not much effort has been made on improving project owner's capability, even though owner is critical to project success. The target for innovation needs to be moved to owners by shifting the paradigm of innovation. Consequently, improvement plan should be focused on public project owner including government. Public project owner should be a driving force of innovation.

B. Improvement Plan on Discussion

○ *Clarifying owner's role and responsibility*

- Define owner's role and responsibility in every phase in public construction process and document it.
- Government provides guideline, then each project owner has a clause regarding to owner's role and responsibility in contract for specific project

○ *Developing Owner's capability assessment tool*

Identify what knowledge and performance competencies are needed to meet previously defined public project owner's role and responsibility, and develop a model to assess those capabilities in objective way.

○ *Regulation on public project owner's capability review in planning stage*

Implement public project owner's capability to determine if the owner has enough ability to handle the project efficiently and achieve the project goal before setting preliminary plan

○ *Periodic review of public project owner's capability in organization level by third party*

Implement third party review on public project owner's capability periodically and the owner develop improvement plan according to review result and recommendation

○ *Developing training program on project management for public project owner*

Establish a public project owner training center and provide an education and training program on project management with public project owner through the center

○ *Founding public project owner's association*

Establish public project owner's association and then provide follow activities;

- Hold spring and fall Leadership Conferences
- Network with owners and other construction industry experts, participate in open forum discussions, visit industry supplier exhibits, learn from educational seminars and breakouts and hear about the hottest issues affecting owners/suppliers.
- Standardize construction contracts and forms.
- Project Information Directory: A comprehensive database of owner member construction projects that help members locate colleagues that have had similar construction projects and experiences.
- Project Leadership Award: an annual awards program that recognizes Owners' excellence in project management.
- Issue an owner perspective magazine containing articles on the latest trends and issues for Owners.

○ *Improving construction management and program management*

Develop long-term plan to activate Construction Management to assist public project owners who does not have enough ability to handle a public project, for example, local government

○ *Flexibility for owner in selecting project management method*

Flexible use of project management method (direct PM by own workforce, hiring construction manager, or any other project management methods) depending on the public project owner's capability and project characteristics.

4.2 Process Improvement

A. Background

It is common sense planning stage is more important than construction stage for successful project. The planning and programming input to the plan should be developed using a wide range of analytic tools, with the collective integration and input from many sources. A basis in data and

understanding of the current situation including population, employment, and land use, and their effects is first developed. An assessment of external factors or those factors beyond the control of the project owner is also required to fully understand the current situation.

With the situation analysis completed, the focus turns to identifying the needs within 5-year, 10-year, and longer-term timeframes. Then evaluate available resources and optimize their utilization, to identify, evaluate and prioritize the projects and to assess the funding requirements and sources of funds available to finance the operating and capital costs of these projects, and to further identify alternative financing mechanisms to better utilize available resources to pay operating and capital costs.

Many policies have been implemented in planning phase so far such as pre-feasibility analysis done by budgeting authority, feasibility study by project owner, feasibility re-analysis by budget authority for inactive or poor progress projects, and comprehensive cost management regulation. However, there is still a problem resulting from poor analysis of feasibility of the project and prioritizing among projects or programs.

Recent publication "Analysis of case study on budget waste and guideline on avoiding those wastes" grouped factors resulting in waste of budget and analyzed the factors. Main factors which occur frequently are poor feasibility analysis, lack of comprehensive analysis of project needs, lack of consideration of changed environment or conditions, implementing low priority project rather than higher priority project, political pressure, over estimating project size, lack of plan for funding, and duplicated investments.

Another critical weak point of public process in Korea is that most regulation focuses on treatment behind trouble rather than managing the project in advance to achieve project goal that is set in planning phase.

B. Improvement Plan on Discussion

- *Improving the process*

Improve the public work process by Improving review system of the result of feasibility analysis, setting criteria on prioritization, and clarifying the process of budget allocation to prevent improper project from implementing

○ *Developing progress monitoring system (Gateway review system)*

- Progress monitoring system examines programs (or projects) at key decision point in their lifecycle. It looks ahead to provide assurance that they can progress successfully to the next stage. Through each gateway, the reviewer checks if the project fulfilled all tasks required in previous stage, still can meet project goal, and have enough resources to go to next stage.

- Criteria on selecting projects to be reviewed by Gateway review process

All public works are under Gateway Review Process in the U.K. Considering initial stage of adopting the process in Korea, a certain guideline is necessary in selecting a project which will be reviewed by gateway process review system. The criteria on selecting project is based on the result of potential risk assessment done by project owner, and then may be project size in dollar.

- (Tentatively) CIC (Construction Innovation Center)

Found CIC to implement progress monitoring system. It's role will be similar to that of OGC(Office of Government Commerce) in the U.K. CIC will develop a guideline for implementing progress monitoring system, find and disseminate best practice, and assist public project owner in implementing the system.

○ *Coordinating between existing policy and progress monitoring system*

Basic approach to this issue is to adopt the process of Gateway review process in the U.K based on integrating it with existing process and policy. The gate will be in each phase of project life cycle in planning, pre-feasibility analysis, choosing and review of project delivery system, decision making on investment, construction, and post-project evaluation.

4.3 Performance Management System Improvement

A. Background

The public expect government to implement programs that will provide critical national level services and produce meaningful results. The objective of performance management system is to ensure that taxes produce the greatest results possible. The system provides information on program performance to help the government make better, more informed decisions about the public works.

So far, government controls in terms of input or process rather than output or result. This kind of control by government reduces effectiveness of public works. Since advanced countries have focused on performance measurement and improvement, Korea also needs to have a strong performance measurement and management policy to improve performance of public works. Basic idea behind performance management is that government should be accountable for its performance, and taxpayers must have clear and candid information about the successes and failures of all public works.

Korean government adopted performance management policy for public funded project in 2003 and is driving performance-oriented management and emphasizing accountability of government to taxpayers. Based on this direction, Self-assessment system for public-funded project (2005), Depth evaluation system (2006) and Post-project evaluation system are adopted. But these systems have some problems in evaluation factor and weighting, and low concerns on key factors such as time and cost.

B. Improvement Plan on Discussion

○ The performance management policy will focus on performance in two principal ways:

- Improved Program Performance

The policy requires each public owner to identify opportunities to improve program management and design, and then develop and implement clear, aggressive plans to get more from tax every year.

- Greater Investment in Successful Programs

Although performance is not the only factor used to decide the size of a program's budget, budgeting authority can utilize information about a program's effectiveness and efficiency in

decision- making so that taxpayer moneys are invested in programs that provide the greatest return to the Nation. If poorly performing programs are unable to demonstrate improved results, then their resources may be reallocated to programs that can demonstrate greater success and returns to the taxpayer.

○ *Developing performance management system*

- Implement pilot project
- Expand projects under the system after analyzing the result of pilot project
- Develop project performance data base
- Establish organization to manage performance management system to provide guideline on performance management system and maintain the system.

5. Conclusion

All the improvement plans addressed in this paper are still on discussion by construction experts.

When these improvement plans are implemented, we can have an expectation as follows. Public can expect avoiding unnecessary cost due to delay by completing public projects on time without delay by setting criteria on prioritization, stable funding, and full-funding policy. Public project owner's project management capability assessment tool can provide public owners with an opportunity for public project owners to have self-assessment in objectively and figuring out what area they need to be improved and helping them develop improvement plan. Through this process public can expect that public project owner can not only managing the project well but also lead the industry. By monitoring progress and performance in phase, public project owner can take proper action not to deviate the project against specified goal. And providing taxpayers with clear and candid information about the successes and failures of all public works, government will be able to accountable for taxpayers.