Lessons learned from Multinational Parties Involved Program Management Consortiums in Korea

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Abstract: This study explores the issue of program management consortia involving multinational participants. The aim of this research was to leverage advantages in program management (PM) skills and PM model improvement in product line construction in mega scale construction programs, typically funded by public funds. Such ventures involve multinational parties using dedicated partnering based on a program management consortium (PMC) to reduce confrontation between parties in complex circumstances, allowing an open and non-adversarial approach to project management. This research also seeks to implement an ongoing feedback program of best practices and lessons learned to minimize the repetition of mistakes and to reduce costs in sequenced construction. Recently, the Korean government has planned to undertake three large new projects: the Korean Peninsula major river maintenance, the reclamation of Se-Mangum, and the Science/Business City. This paper starts by providing a framework for the cost-reduction strategy for the United States Forces Korea (USFK) Relocation Program, which will be funded with public funds and a private fund investment (PFI) that combines programs executed by two governments as owners and multinational stakeholders, joined in the PMC. The establishment of project-oriented consortia is an innovative and non-adversarial approach to massive international construction projects. Such projects have used various tools effectively and skillfully. This experience may offer an opportunity to practice new and advanced program management delivery methods, and it is expected that Korea will gain a competitive advantage in the international construction market.

Keywords: PM, PMC, E-MOU, Multinational Parties

I. INTRODUCTION

Program management has generated considerable interest in the construction industry. Establishing an effective program management (PM) system is important to the successful completion of major construction projects. Under the WTO (World Trade Organization) and FTA (Free Trade Agreement), changes in the international construction market environment have affected the way in which contracts are awarded, with more emphasis on partnership than an adversarial relationship. However, multinational stakeholders involved in the construction management business have encountered many problems, such as poor cooperation, limited trust, and ineffective communications, often resulting in adversarial relationships between stakeholders and, thus, poor project implementation in terms of time, cost, and quality.

Recently, the Korean government has planned to undertake three major new projects: Korean Peninsula major river maintenance, reclamation of Se-Mangum, and the Science/Business City. Thus, the Korean government has been reviewing alternative proposals from foreign investors, companies, and finance agency investment consortia to obtain 40% of the project funding from foreign countries. The review and analysis of the program management consortium type of project management is important with regard to formulating appropriate measures, and to initiating actions to improve practices for future Korean projects. The introduction of consortia in programs, such as the USFK relocation program, involving multinational parties has been widely accepted by both academics and practitioners as an effective management tool to improve the program and quality, as well as costs, time and, above all, to reduce confrontation between parties under complex circumstance, enabling an open and non-adversarial approach to the management of construction programs In particular, because of FTA commitments, Korea needs innovative delivery methods and systematic and strategic approaches.

This paper begins by addressing the consortium for USFK relocation project management consortia (PMC) case study, and their interviews and survey analysis. The project-oriented consortium is an innovative and non-adversarial approach to the procurement of construction services in massive international construction projects.

II. RESEARCH OBJECTIVE

The objective of this research was to develop a program management cost-reduction strategy framework for multinational parties involved in program management projects, such as the USFK relocation project, to evaluate possible combinations of a new method of PM we refer to as a Program Management Consortium.

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The size of this program allows stakeholders to benefit from economies of scale, learning curves, and lessons learned, in order to save costs and time with respect to future projects within the program. This research combined the use of a case study approach and Project Management Consortium Performance Monitoring results from published reports of data collected in the PMC's survey. The literature on project management was extensively reviewed.

Data for the case study project were collected through four industry representatives; two client representatives (ROK/US), a main contractor representative, and a consultant representative with hands-on experience in the partnering project were interviewed, and the interviews were documented. Additionally, workshop reports, an Implementing Agreement (IA), an Engineering MOU, and data were collected from various sources to verify the findings.

III. LITERATURE REVIEW

Generally in Korea a PMC has worked between the owner, architect (designer), and the construction company as a coordinator to successfully finish the entire construction process. Typically, the PMC makes a civil appeal and submits alternatives to the government. Examples of consortia in Korea include combinations of publicly funded projects and Private Partnership Programs.

Zhang and Kumaraswamy (2001) analyzed five BOT (build-operate-transfer) tunnel projects in Hong Kong and summarized the experiences and lessons learned from the projects. Seven major issues--legal framework, risk allocation, design/construction, transfer, possible improvements for future BOT projects, reverse tendering, and traffic flow and timing--were discussed in detail. Their research described key developmental aspects of the five BOT tunnels though the project life cycle, from the feasibility study to tender selection, legal, financial, and land issues, design and construction, operational and maintenance considerations, transfer, and finally post-transfer management.

Chan and Messner (2005) developed two systems concepts for managing project complexity; these were a process modeling approach and an interface management process, involving specific measures. Interface factors for BOT projects in China were identified as the public sector, bidders, the private sector, contractual systems, public resources, constraints, products and services, revenue, experience, private resources, product and service information, environmental impacts, and feedback information.

Salman and Skibniewski (2007) developed viability decision factors that were identified and screened with experts. This analysis yielded 21 significant factors (classified into three relevant categories) that would have a clear impact on the feasibility of any BOT project.

IV. PROJECT BACKGROUND

The USFK relocation program was planned, coordinated, and controlled with a PM methodology because the program faced many challenges, including time and cost limitations. Moreover, it involved many large-scale projects being carried out by the Republic of Korea (ROK) and the United States (US) through cooperation and mutual agreement. The PMC analyzed the characteristics and complexities of the program and studied and analyzed the E-MOU between the ROK and US governments. The PMC, with authority delegated from the owners, conducted its operations.

Program Cost and Scope

The total construction cost may approach or even exceed US$8.6 billion and includes approximately 700 projects on over 11 million m^2 (2800 acres) of land.

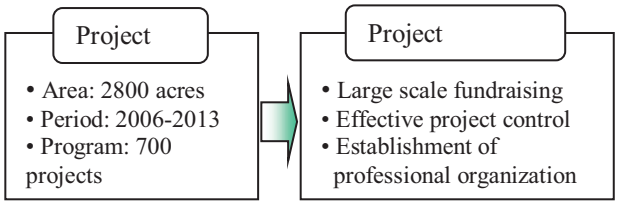

Figure 2. Project scope and conditions of execution

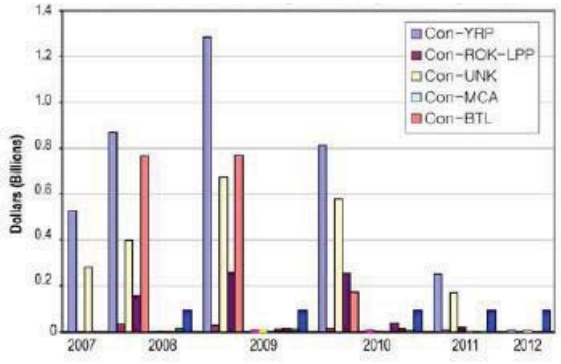

Figure 3. Funding Profile by Funding Source
*note: based on funding sources per Master Plan

PM Organization

The ROK Ministry of National Defense (MND) and HQ USFK, through their design and construction agents (DCAs), established a program to realign and relocate a substantial number of US military forces. The program had to accommodate the interests as well as the programmatic and functional requirements of numerous ROK and US constituencies. The intent in using PM was to enhance the successful completion of the program with the minimum number of personnel at a desired level of quality, and within the prescribed budget and schedule, as agreed by the ROK and US governments. To this end, the program established a PMO (project management office) that includes the ROK DCA (MND USFK Base

Relocation Office, MURO), and the US DCA (US ACE Far East District, FED). The two DCAs will represent the two governments in carrying out the PM for the program in the PMO, but will operate as a single owner. The PMO will also include a contracted PMC. The owner wishes to establish a close partnering relationship between the PMC and the owner.

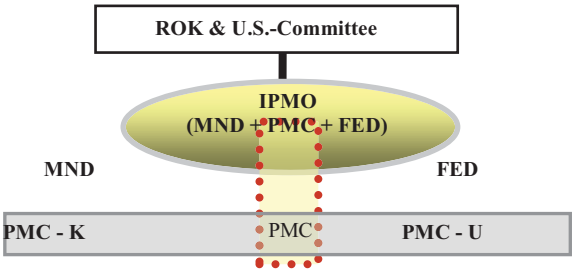

Figure 4. PMC Organization Diagram

PMC Responsibilities

To ensure that the system is suitable and incorporates appropriate personnel, program responsibilities and duties were described in the EMOU between the ROK and US governments. The next section contains an explanation of the organization and the chain of command.

a. ROK and US DCA duties:

Report modifications to the contractual documents and provide revisions to the contractor(s) within the PMC, and any guidance and/or direction given to the contractor(s) within the PMC.

Review and approve the proposed program management execution organization and plan submitted by the PMC.

Evaluate PMC performance quarterly, and reach agreement with both DCAs on the results of such evaluation, which will be used to determine the fee paid to the PMC.

Develop an efficient and cost effective strategy to produce criteria packages.

b. PMC duties:

Operate as a team.

Determine the roles and responsibilities of the different firms within the PMC, as explained as part of their proposal.

Provide the ROK and US DCAs with the consortium's method of billing the governments (i.e., will one firm accumulate and segregate the cost to be billed or will each firm within the consortium accumulate and segregate their cost individually? The member firms of the consortium shall maintain adequate accounting systems for accumulating and billing costs on government contracts).

Provide professional program and project management methodology and the latest technology: establishment of a master program schedule; review of design criteria, establishment of project numbering system; development of work break down system (WBS) and an integrated program management information system (PMIS); commissioning and turnover of completed facilities; project scope control and risk management; construction management; sequencing and quality control; construction cost estimating; program and project progress reporting; document management; and performing special studies. Conduct monthly and quarterly program progress status meetings with the ROK and US DCAs, the respective users, and design and construction contractors.

Coordinate approval of all value engineering proposals with the ROK and US DCAs.

Provide capabilities to review and develop criteria packages and recommend, as appropriate, improvements to any ROK and US design, construction, and acquisition strategy or processes, to improve efficiencies with regard to time and schedule and enable cost savings.

PMC Strength and Weakness analysis

(1) Strengths

Six major benefits of the PMC concept were identified from the interviews:

1) Promotion of team spirit, 2) creation of a healthy working environment, 3) better communication, 4) mutual trust, 5) enhancement of problem solving techniques, and 6) minimization of abortive work. Successful adoption of these factors by the consortium resulted in the concepts of shared gain and pain, a win-win approach, a high level of commitment (the steering group), mutual trust and respect, efficient communication, open mindedness, and thorough understanding of the consortium at all levels.

(2) Weaknesses

Similar to other projects, there were some difficulties: 1) cultural differences, 2) language barriers, and 3) problems in achieving common goals/objectives. The parties also had difficulties discussing and communicating openly at the beginning, and it took a considerable time for all the parties to be fully open with one another.

Survey for the PMC operational issues analysis

The purpose of this analysis was to diagnose the PMC in-house staff's capabilities to actively adapt to new circumstances, based on the interview results. The survey was directed towards project-level teams and personnel, 60 persons each from the ROK and US. The subjective ratings asked respondents to analyze the 1) project schedule control, 2) budget control, 3) safety and quality control, 4) team trust built-up, 5) increased team ability, and 6) enhancement of problem solving techniques, on a 1-5 scale, with 1 being "very bad" and 5 being "very good". Figures 4 and 5 show the survey results.

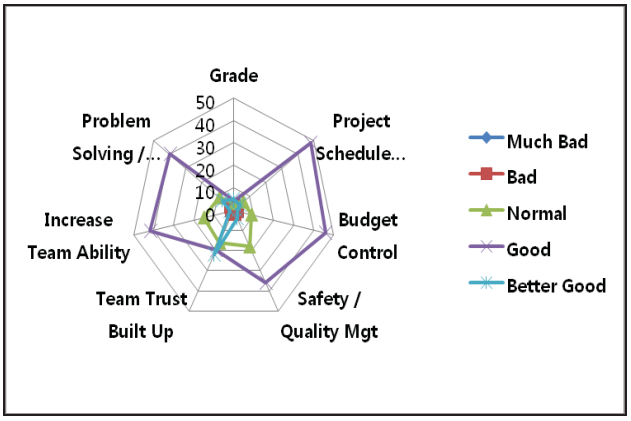

Figure 4. ROK-PMC Survey Results

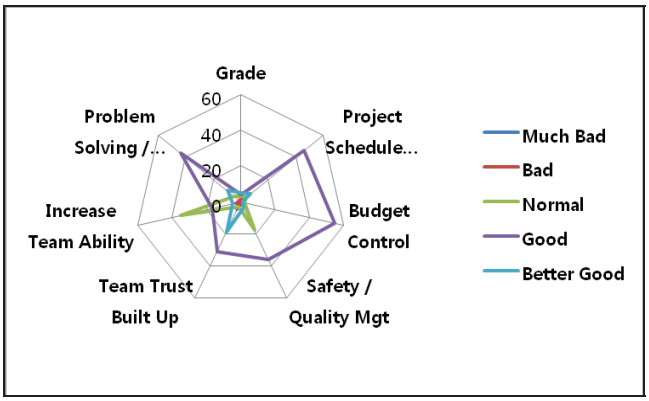

Figure 5. US-PMC Survey Results

According to the results of this survey, most of the PMC members agreed on the benefits of the six subjects in the questions.

However, there were somewhat different answers from the ROK and US sides, though it was unclear whether this was truly related to experiences in consortium projects or cultural differences.

Next, we conducted another survey with the same respondents about the hierarchy of critical issues and success factors for multinational parties in an integrated program management organization. The purpose was to examine the problems found and to develop appropriate methods to actively adjust to the survey results. Figure 6 and Figure 7 shows the results.

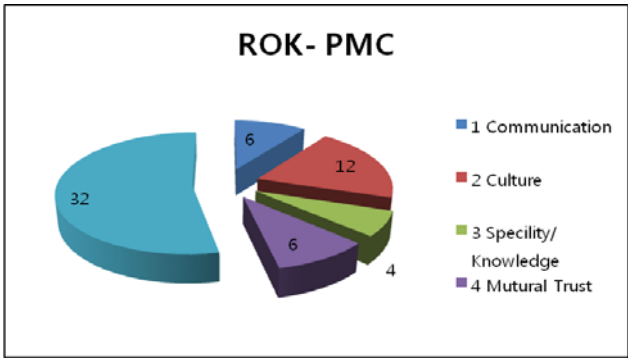

Figure 6.ROK- PMC operational issues

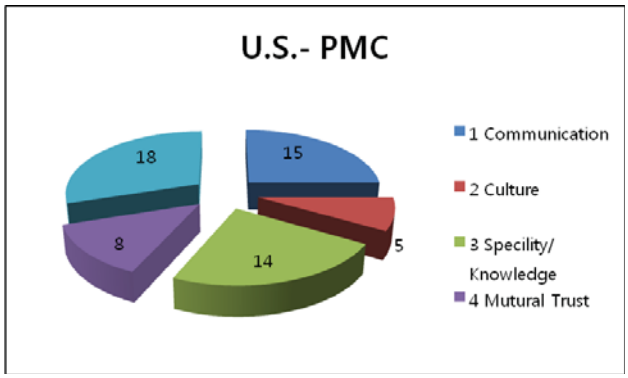

Figure 7. U.S.- PMC operational issues

Analysing and comparing the survey results between ROK and US respondents, for the Koreans, the most important issue was rapid decision making and overcoming cultural differences, followed by effective communication, but US respondents emphasized effective communication and proportionality. A synthesis of the survey results should be kept in mind for the successful adoption of such factors by the consortium. These included: 1) having a concept of shared gain and pain, 2) a win-win approach, 3) a high level of commitment (from the steering group), 4) mutual trust and respect, 5) efficient communication, 6) open mindedness, and 7) a thorough understanding of the consortium at all levels. These findings offer an important lesson for future projects with multinational parties in similar program management consortia.

V. DISCUSSION

PM-type projects have been used in Korea since 1994. Numerous SOC projects have been developed and various types of services have been provided through such schemes.

PM practices have provided valuable contributions to the construction industry in Korea by attracting advanced foreign technologies, technical innovations, program management skills, and operational efficiencies. They also promote the process of formulating appropriate legal and regulatory structures that are consistent with international practices. However, barriers still remain between Korea and other countries with regard to adopting multinational party PM or PMCs, as discussed below.

a. Suitable Legal Foundation

The PMC must provide its services in accordance with the standards of its professions, and in accordance with Korean and US laws, and any regulations specifically applicable to the performance of these services. In the event that the PMC identifies a conflict between the laws and regulations of the ROK and United States, the PMC must inform the owner of such a conflict immediately and provide alternatives, to resolve the conflict, while considering such factors as cost, schedule, and quality.

This project used legal problem solving tools operational for both ROK and United States, such as the Umbrella Agreement (2004.12) and the EMOU (2005.7).

b. Coordinating and Supportive Authority

The two DCAs operate as one owner. The owner wished to establish a close working relationship with the PMC. For this program, the PMC established an efficient and reasonable decision making system for discussions, meetings, reporting, control, and scheduling, which included coordination with the owner, PMC, contractors, and all other external parties.

c. Limitations

While the PMC manages the efforts of designers and construction contractors through the respective DCAs, the PMC does not assume any of the responsibilities or duties of the construction contractors or designers. It is intended that the services of the designers/contractors and the PMC be complementary. The PMC provides management and oversight of the designers and construction contractors on behalf of the owner. The PMC must consider the characteristics of the program and diversified contract methods, such as design–bid–build, design–build, and BTL, that can be implemented in the program.

d. Program Cost Reduction

The owner wishes to take maximum advantage of any potential savings. To ensure that the program is completed within its budget and schedule, the PMC should explore design standards, standard designs, off-the-shelf items, product line execution, bulk purchases, repurchases, establishment of common-use facilities, such as batch plants, risk control, key subcontractors, restricted access and construction space, as well as problem anticipation, expeditious answers, claims avoidance, and claims management.

VI. Lessons Learned

The success of this management approach was most visibly demonstrated in the ability of the project to remain within budget and remarkably close to an aggressive schedule established. The following items were of particular importance in achieving this level of success. The ability to recruit a talented in-house program management team was a major factor. The creation of a special unit with a clear, finite, and somewhat all-consuming mission led to an ability to attract a talented and experienced group of individuals who were dedicated to moving the project forward. The ability of the PMC to retain adequate control of the program, and the size of the program management organization, enabled the maintenance of control and provision of sufficient direction to consultants on key elements of the project. The size of the team was also adequate to assign clear responsibility among individuals and to monitor their progress in achieving their objectives previously addressed the survey results for the PMC's operational issues analysis and discussion issues planning capability and cultural difference overcome, proper communications and co operability concerns have been well-integrated into the process. Teamwork reached its maximum during the startup of facilities, which required the expertise of all parties to ensure smooth operations.

VI. CONCLUSIONS

It is important to identify critical success factors for PMC projects with multinational consortia. We have set out some of these factors through the analysis presented here. Additionally, macroeconomic values are important for PMCs. As the construction industry becomes more familiar with the concept of consortia, further innovative aspects of the concept can be explored and embraced. From this analysis of the USFK Relocation Program in Korea, the items below are to be emphasized, as an example of PMC operation in a massive international construction project between the ROK and US governments.

First, appropriate communication, based on fiduciary relationships within and between the parties, achieving common goals and objectives, protecting proprietary information, evaluating and assuring value received, fair sharing of risks by all parties, obtaining and maintaining commitment, creating strong dependency between partners, limiting competitive market strategy, and integrating different national and company cultures are key.

REFERENCES

[1] "Programming Cost Estimate for Military Construction TM 5-800-4, Headquarters, Department of the Army," "DoD Facilities Pricing Guide Version 5, United Facilities Criteria (UFC) 3-701-03."

[2] Barlow, J., Cohen, M., Jashapara, A., Simpson, Y. (1997.11) Towards Positive Partnering: Revealing the Realities in the Construction Industry.

[3] Kneeland A. Godfrey, Jr.(2009) Partnering in Design and Construction.

[4] EMOU (Engineer-Memorandum of Understanding) (2005.7JI. S. Jacobs and C.P. Bean, "Fine particles, thin films and exchange anisotropy," in Magnetism, vol. III, G.T. Rado and H. Suhl, Eds. New York: Academic, 1963, pp. 271-350.

[5] Korea Industrial Development Institute (KIDI). (2006). A Study on the Construction Management for Military Installations, pp. 143-162.

[6] Construction & Economy Research Institute of Korea (2014) PM Workshop Report.

[7] Umbrella Agreement (2004.12) Ratification from ROK/US

[8] Ok-Yeol, Ko, "Korea experience Project Management Consortium on the US Forces Korea Relocation Program", JAABE vol.7., no.1, 2008.5.