Session Report:

MANAGEMENT I

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Dr. Benito M. Pacheco

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Systematic and Objective Management of Risk Through Use of an Engineering Analysis Approach
by Mr. Robert J. Smith

Work Standardization and Management System Suitable for International Construction Projects Carried by Japanese Contractors
by Dr. Shunji Kusayanagi

The Ubiquitous Requirement of "Performing to High International Standards"
by Ms. Patricia Galloway & Mr. Kris Nielsen

Mr. Robert J. Smith

Dr. Shunji Kusayanagi

Ms. Patricia Galloway

Mr. Kris Nielsen

1. Summary

This summary highlights key management challenges in the construction of public works, which have been identified from the three presentations in this session "MANAGEMENT I" in the track of "Construction & Management. It includes the themes of Risk Management, Work Standardization and Management System, and Performing to High International Standards, presented by:

- Robert J. SMITH, Fellow, ASCE; Senior Partner, Wickwire Gavin, P.C. and Adjunct Professor of Civil and Environmental Engineering, University of Wisconsin-Madison, USA
- Shunji KUSAYANAGI, Fellow of JSCE, Member of ASCE, Dr. Eng.
- Patricia D. GALLOWAY, P.E., BSCE, MBA, FASCE, FIEA, PMP, MAE, and Chief Executive Officer and President of the Nielsen-Wurster Group, Inc., USA

The presentations are summarized as follows:

1) Systematic and Objective Management of Risk through Use of an Engineering Analysis Approach

Basic principles of contractual and construction risk recognition, identification, and allocation became better known during the latter years of the 20th century. However, application of these concepts on a project-specific basis has been limited both in terms of the number of projects and the breadth and depth of application on a given project. To better apply these principles and thereby reap the schedule and cost benefits associated with them, a systematic approach for managing risk is described. Team workshops are emphasized.

2) Work Standardization and Management System suitable for International Construction Projects carried out by Japanese Contractors

The Japanese construction industry has a unique management background, which cannot be found in other countries. With this management background, Japanese contractors carry out domestic projects very successfully. When going out to the international construction market, however, their management system often produces a different result. They can carry out and complete projects to a high standard of quality and within the designated period of time but in may cases their effort will not be compensated with the expected monetary returns. This paper considers that it is essential for them to make an appropriate project management system that can be used for international construction market, and to encourage better documentation.

3) The Ubiquitous Requirement of "Performing to High International Standards"

With increasing frequency on international projects, generally involving some form of design-build method of execution, the "standard of care" specified for the execution of the Project is some variant of the phrase "high international standards." As a measure of performance or as a basis for resolving changes and/or claims, this ubiquitous phrase must be developed into some form of a metric. Parties cannot plan or perform without knowing and understanding the meaning and definition of the requirement and the manner in which performance will be judged. Reasonable and broadly based metrics are available for international bodies and can be applied to specific project contexts and conditions of project execution.

2. Presentation Highlights

These presentations introduced three (3) schematic management approaches to the success full implementation of public works, which highlight the following aspects.

1) Systematic and Objective Management of Risk through Use of an Engineering Analysis Approach

Project owners have recently become more motivated to obtain the benefits of better risk management for their constructed projects. They seek to integrate risk management into project planning and execution. However, many efforts have been ad hoc, narrowly focused, and subjective. Thus, there is a need to develop a systematic and objective management of risk which has the following three basic components.

a. The formation of a task force or committee of project-knowledgeable stakeholders
b. A workshop to identify and then predict the frequency and severity of risks and prioritize those risks warranting further attention.
c. A workshop to develop a specific risk management implementation plan based on the frequency/severity workshop.

The author concluded that the team/workshop approach to construction project risk management is broad-based, systematic, and objective. Given appropriate owner commitment to leadership, resources/staff and implementation, its application will lead to better contract relations and more cost-effective contracts.

2) Work Standardization and Management System suitable for International Construction Projects carried out by Japanese Contractors

Carrying out of international construction projects requires a more effective management technique than that for handling domestic projects. Japanese project management system lacks the skills to solve the problems that arise, in the philosophy of international construction contracts and project management domain, of prevailing mutual distrust, and if this were brought into an international project, it would reveal a “hollowing-out”, of quite fragile nature. Thus, it is essential to establish the fundamental ideas of work management system for Japanese contractors when they carry out international projects.

An effective management system can be formed when the realities of international projects and clarified points made by comparison analysis of specific characters of Japanese project management can be incorporated into the preparation of work standards and manuals of the required works. This is quite important and indispensable before going into the computerization. The following summarizes the system structure:

a. Build up systematized work standards and manuals of the core works required for execution of the project to be done.
b. Top-down decision-making structure shall form the organization base, and procedures of works needed for project performance must be fixed.
c. The “degenerate management techniques items” must be re-built and revised to suit international projects.
d. ”Reinforcing functions of management in the domain of mutual distrust” is required, and work contents and procedures should be defined.
e. Communication by writing shall be the priority, and necessary formula must be systematized into the easy handling of recordings.

In accordance with the WTO treaty, internationalization of markets is heading for more concrete directions. It must be necessary to reconsider systematization of the project management in ones own country.

3) The Ubiquitous Requirement of "Performing to High International Standards"

Within the global context there are means and tools for providing commonly understood standards and their application – thus providing the needed predictability essential to improve project risk management, project management and commercial success on international projects. The standards must be global and recognized internationally so that there is a basis for measurement. Such measurement must be in the context and conditions in which the project will be or was performed.

Expectations form a basis from which parties can plan and thus monitor whether execution meets a "Standard of performance." Some guidance as to expectations in the international market place for Engineer-Procure-Construct (EPC) delivery methods and contracting options is provided from a simple matrix presented in Table 1. This type of matrix when applied to the execution conditions and context enables a profile of management process needs that becomes a metric for measuring whether the plans and execution meet such expectations and how plans and execution would have to change if the execution context and conditions were different.

There is a body that has promulgated internationally acknowledged and recognized standards that are accepted as industry practice for Project Management. That body is the Project Management Institute (PMI). To provide a basis for the Project Management Professional certification testing, the university program accreditation process and to guide those engaged in Project Management applications, PMI has developed the "Project Management Body of Knowledge" or "PMBOK," which describes generally accepted practices with respect to Project Management. Generally, the project management processes that are the primary focus of any Project Management effort are:

a. Planning processes -- that devise and maintain a workable scheme to accomplish the business need that the project was undertaken to address.
b. Executing processes -- that coordinate people and other resources to carry out the plan.
c. Controlling processes -- that ensure project objectives are met through monitoring and measuring execution efforts and taking corrective action as necessary.

No project is perfect, and no project execution is ever accomplished precisely as desired. No international standard in existence, however, requires perfection. What the broadly expressed Standards of Performance require in common is that all project participants plan and execute a defined scope of work within certain defined parameters, always taking into account the actual context and conditions under which the project was executed. The confusion and lack of a adequate definition that has caused extensive debate and dispute regarding the contractual mandates of a "High International Standard" of performance is available in widely accepted international guidelines that define guidelines that can be employed regarding in a broad range of projects in the expected and actual execution contexts, and conditions

Table 1. Preferred Project Delivery System and Contract Type

	Project Delivery System		Contract Type			Example Projects							
						W		X		Y		Z	
	Conventional	Design-Build	Lump Sum	Unit Price	Cost Reimb.	e	a	e	a	e	a	e	a
Owner Considerations And Requirements													
Cost Control is Major Consideration		✓	✓			✓	X	✓		✓	X	✓	X
Owner to Control contingency	✓	✓			✓			✓	X		X		X
Bid Competition Required	✓	✓	✓	✓		✓	X	✓	X	✓	X	✓	X
Maximum Owner Involvement	✓				✓				X		X		X
Minimal Owner Involvement		✓	✓			✓	X	✓		✓		✓	
Owner Has No Oversight Capabilities		✓	✓								X		
Single Source Responsibility		✓	✓	✓	✓	✓	X	✓	X	✓	X	✓	X
Contractor Provides Project Funding		✓	✓						X		X		
Project Scope and Parameters													
Clear Scope Definition	✓	✓	✓			✓	X	✓	X	✓		✓	
Minimal Scope Definition	✓				✓						X		X
Scope/Complexity Defined, Quantities Uncertain	✓			✓					X				X
Minimal Scope changes Expected	✓	✓	✓			✓	X	✓		✓		✓	
Potential for Large Scope Changes	✓			✓	✓				X		X		X
Tight Schedule		✓	✓	✓	✓	✓	X	✓	X	✓	X	✓	X
Volatile Project Environment	✓	✓			✓				X		X		X
Stable Project Environment	✓	✓	✓			✓	X	✓		✓		✓	
Large Complex Project	✓		✓	✓		✓	X	✓	X	✓	X	✓	X
Primarily New Technology	✓	✓			✓				X		X		

3. Conclusion

It is of a great importance to review the widely accepted principles of risk allocation and to figure out a structured process for identifying and managing risk, which is applicable for both owners and contractors.

Japanese construction companies need to find out an effective management system for execution of the international construction projects. To set up work standards is one of the key requirements.

There is a lack of definition of what high international standards or good industry practice means and thus interpretation raises conflicts among parties. Project management organizations like Project Management Institute provide some base understanding as to what high international standards are.

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