Assessing Human Resource Management in Construction Projects in Kuwait

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Abstract
In developing countries, a general lack of experience exists in construction management implementation. This study introduces a methodology to evaluate human resource management processes in construction projects. The study used inputs, outputs, and tools and techniques recommended by the Guide to the Project Management Body of Knowledge (PMBOK, 2004). The opinions of experts in the field of construction projects were collected regarding the managerial parameters and tools of interest. The analytic hierarchy process was used to evaluate the ranking of each parameter. The performance of each process was determined based on the importance weighting and the proposed efficiency of each variable. The results of the implementation showed considerable progress in project planning, but team development and team management need much more attention. The study presents a methodology for human resource assessment in the construction industry and the findings are applicable to Kuwait and similar developing countries.

Keyword: assessment; construction; human resources; project management

1. Introduction
Human resource management is one of the core management areas in construction projects. Human resources constitute 25% to 40% of the direct costs of such projects depending on their complexity and nature. Human resource management also drastically affects the total cost of the project because it controls the productivity of materials and equipment that constitutes the remainder of the direct costs (Lee et al., 2004; Thomas et al., 2004; Loosemore et al., 2003; Maloney, 2003; AbouRizk et al., 2001; Allmon et al., 2000). However, this area of management application has received little attention from researchers in the construction management field.

In developing countries, a common lack of experience exists in construction management implementation. Management knowledge and skills are gained through practice, training, and interacting with other experienced individuals and entities. The state of Kuwait has thus been working on the development of qualified citizens to take over local construction projects. After more than fifty years of such preparation, construction projects still depend on expatriates, mainly from Arab and Asian countries, especially in the private sector.

The current study presents the results of an assessment process for human resource management in the field of construction projects in Kuwait. The study utilized the guidelines of the Project Management Institute (PMBOK, 2004) in the field of human resources to assess the conduct of different processes in the construction sector. The assessment employed professionals from the governmental sector as well as the private sector.

2. Efficiency of Human Resource Management
The construction industry in Kuwait suffers from a lack of experienced local managers to satisfy the expanding demand for construction. This insufficient experience results from being an emerging country (achieving independence in 1960) that still depends mainly on the production of oil. This situation forces the industry to use expatriates, mainly from other Arab and Asian countries, to fill the required vacancies. Over the past fifty years, the construction authority has worked hard to develop local experience to substitute for that of expatriates. Now, assessing the local capacity to participate in the construction management process is important.

The assessment process is aimed at determining the reasons for the lack of local experience needed to carry out the management of construction projects and define the strengths and weaknesses in local professionals.

3. Research Method
The current study presents a managerial assessment of human resource management in construction projects in Kuwait from the practitioners' perspective.
The study utilized the guidelines of the Project Management Institute in human resources to conduct the study. The participants were Kuwaiti citizens with technical and managerial backgrounds and experience ranging from 15 to 32 years in construction projects. The discussion sessions examined the guidelines of the Project Management Body of Knowledge (PMBOK, 2004).

A questionnaire was constructed and distributed to the participants to assess the priority and efficiency of the parameters and tools utilized in human resource management. The questionnaire was divided into two main categories. The first considered the inputs and outputs of human resource management processes, and the second category considered the various tools used in the field. The ranking of these management parameters was developed using the analytic hierarchy process (AHP). The AHP was developed in the early 1970s by Saaty to evaluate the relative importance of multivariate. The efficiency of each management parameter was evaluated on a five-point scale. The value of five represented the highest efficiency, while one indicated the lowest efficiency. Fifty-seven (57) participants responded to the questionnaire. Fig.1. presents the composition of the occupational classes of the participants. Almost two thirds of the participants represented the owner side while the remaining third consisted of engineers, contractors, or suppliers.

4. HR Management Parameters

Four processes were considered in the study per the PMBOK guide: planning, team acquisition, team development, and team management. Each process had inputs and outputs, which were considered in this study to be managerial parameters that affect the implementation of the project. The following section elaborates the effect of these parameters as revealed by the discussions and responses from the professionals who participated in the study.

a. Planning

Human resource planning is the initial process in human resource management. It is comprised of the determination of roles, responsibilities, and reporting relationships, and the creation of a staffing management plan. With respect to planning, the study considered the environment of the project, including the professionals who participate in the project, reporting relationships among the teams, cultural and language differences, and the level of trust apparent among stakeholders. The participants' responses indicated that the enterprise environment is well-established according to the defined items due to long experience with other international establishments and previously recruited consultants.

Organizational process assets help project planning based on accumulated information from previous projects. The status in the government sector showed that these assets had already accumulated over the past years in the form of templates or checklists, roles and responsibilities, and safety considerations. In the private sector, the assets are not as well established as in the government sector. In addition, no commercial documentation is available for the local market.

One of the major planning documents is the project management plan that includes PM activities such as quality assurance, risk management, and procurement and contracts. Usually, authorities request full details to be submitted for approval through a strict documentation life cycle. However, the updating of the project management plan is not as strict as for the initial approval. The weak point is that the preparation of the plan is performed by a contractor or project manager who is part of the private sector, where only 5% of the employees are citizens.

Roles and responsibilities must be clear in the project plan. Organizational planning involves identifying, documenting, and assigning project roles, responsibilities, and reporting relationships. In the private sector, the roles and responsibilities are well defined in most of the projects since the work breakdown structure and the corresponding responsibility is usually requested by the owner for initial approval. The problem usually arises in the functional management on the owner side where the roles and responsibilities are not as clear as on the contractor side.

b. Team Acquisition

Team acquisition is the process of obtaining the human resources needed to accomplish the project. It may include any additional stakeholder whose role has not yet been filled. Acquisition extends to engineers, contractors, subcontractors, and suppliers.

Project staff assignments are the set of documents that refer to officially employing the staff. This parameter attracts serious attention from the construction industry. Most of the participants appreciated the documentation process for staff assignment, including the project's work breakdown structure WBS, procurement process, policies and regulations, recruitment rates, qualifications, required
training, and resource allocation with respect to the project schedule.

c. Team Development

Team development is the process of improving the competencies and interaction of team members to enhance project performance. In this process, individual and group skills need to be enhanced to improve the overall productivity of the project. Performance assessment is a milestone in modern management processes. Team performance assessment provides a clear picture of an integrated working team. Unfortunately, although most teams in the construction industry work together on several projects, the participants indicated that the assessment process is seldom conducted. This lack of assessment narrows the prospect for fast development and improvement in this category.

d. Team Management

Team management involves the processes of following performance, providing feedback, resolving issues, and coordinating changes to enhance project performance (Thomas and Zavrski, 1999; Thomas et al., 2003). Managing team members on construction projects is a major challenge because of loyalty to the functional manager in the government departments. In the private sector, this aspect has been nullified, and most employees on the construction projects are following the project organization matrix. Team management is one of the poorest areas in the field of construction management in Kuwait.

Another parameter that affects team management is changes in project staff, which drastically reduces project performance. This change has greater effect when it happens in top management of the project. Although changes in government management positions are rare in construction projects, when they occur, they can ruin the project in terms of time and cost.

Corrective action is a serious parameter in team management. In human resources, the impact of corrective actions is similar to that of change. The study responses showed that, in many cases, corrective action and changes in the Kuwait construction industry are carried out based more on personal interests than project requirements.

5. HR Management Tools

Management tools are the set of methods that facilitate the implementation of management parameters to achieve the goals of a project. The skill levels of the stakeholders in using these tools need to be high enough to generate the required productivity of the individuals and the teams.

a. Planning

Many tools are used in the planning process. Organization charts are documents that state the roles and responsibilities of each person on the project. These documents are usually available, but often do not provide the required details. This lack of information leads to poor control of most project processes. Another tool is networking. The interaction among project stakeholders determines political and interpersonal factors that can influence the effectiveness of the staffing management options. Networking is one of the social habits of the Bedouin tribes, which makes it more likely to be imposed on modernized organizational management.

On the other hand, organizational theory provides information regarding the ways that people and organizational units behave. Unfortunately, social life in Kuwait makes the implementation of organizational theory difficult. Although the major policies are stated in writing or by tradition, exceptions to these policies are commonly accepted.

b. Team Acquisition

Preassignment is a tool used when project team members are known in advance. This use is valid in the government sector based on the policies of the organization and can be based on experience or a turn in the assignment process. In the private sector, this preassignment could be carried out when a special need for high expertise exists in a complex project. Negotiation is another tool carried out with staff to compromise the functional duties against project requirements. Practically, this process occurs in the private sector and rarely in government establishments. Eventually, acquisition is the common tool used with investment firms or governmental authorities, where contractors, subcontractors, and suppliers are found outside the organization. Sometimes, the engineer or the project manager is also acquired from outside.

c. Team Development

Management skills are very important in construction projects, as well as in other application areas. The high capacity of understanding the nature and requirements of employees enhances the competency of the team members and groups. Training is a prime tool for team development. It includes all activities designed to enhance the competencies of the project team members (Allmon et al., 2000). Training programs are usually well developed and organized. The conduct of training activities is also professional. The main problem in training activities is the assignment of the appropriate person to conduct the training program.

Team building is the process of influencing a group of different individuals with their own goals, needs, and perspectives to work together effectively. The goal is that the team effort will accomplish more than the sum of the individual efforts. Team building is a great challenge in Kuwait because of customs that have developed in the local culture over many years. Individual human nature and tribal loyalties resist most attempts to create a team paradigm.

The original plans concerning ways to reward
people are well developed during the planning process. Reward decisions through performance appraisals are made during the process of managing the project team. Recognition and reward should consider cultural differences. In cultures that encourage individualism, rewarding team development is difficult.

d. Team Management

Observations are essential for project and staff evaluation through the sequential progress of the project. The management team should observe using specific metrics, such as earned value, individual and team productivity, and consistency with the project's baseline. The discussions and written responses of the participants in this study showed that construction project managers pay less attention to the attitudes of the project's staff than they do to output regarding the project's cost and schedule.

A project performance appraisal depends on the length of the project, complexity of the project, organizational policy, labor contracts, and regular communication. A performance appraisal is needed in a construction project to ensure that roles and responsibilities are optimized (Thomas and Zavrski, 1999). Changes and corrective actions regarding the project's human resources are usually based on these appraisals.

Conflict management is another tool that results in greater productivity and better relationships. Team ground rules and solid project management reduce the potential for conflict. In the local culture, using confrontation to solve project conflicts is difficult. Usually, smoothing the problem is a common response for both internal and external conflict. This management weakness leads to recurrence of the conflict.

6. Analysis

The collected data was analyzed based on a dual comparison. Each parameter was compared to the other parameter and ranked from one to nine using odd numbers (1, 3, 5, 7, 9) with "9" indicating that the first parameter is much more important than the second. The importance value of "1" indicated that both parameters are of equal importance. On the contrary, a comparison value of 1/3, 1/5, 1/7, and 1/9 indicated that the first parameter was less important than the second parameter. The results provide a consistency ratio of 0.12, which is very close to the value of 0.1, usually considered the limit for acceptance.

a. Human Resource Management Parameters

Table 1. shows a summary of the results obtained for the assessment of the human resource management parameters in construction projects. The eigenvalues of the parameters show that enterprise environment is considered the prime factor in construction project human resource management. A large difference is shown between the importance values of the enterprise environment and the other parameters. In the second category, five parameters may be grouped together. These parameters are the project management plan, performance reports, allocation of roles and responsibilities, team performance assessment, and the staffing management plan. The remaining parameters under consideration may be grouped together into a third category of less importance, as indicated by the collected data. Column (4) provides the eigenvalues of each parameter as obtained from the AHP. These eigenvalues represent the weight of each parameter with respect to the whole management process. Column (5) provides an average of the weights of the parameters for each process. These values provide the deduced weights for each process. Column (6) provides the percentage weight of each process. The values of the process weights indicated that planning was given the most importance according to the participants while team development and team management received the least appreciation from the participants. This finding reflects the attitudes of the participants who have extensive experience of project planning and indicates that team development and team management skills are far below the necessary level as discussed at the beginning of this paper. Column (7) provides the weight of each parameter in a percentage form with respect to its process.

The participants assigned an efficiency level to each parameter based on the practical conduct of construction project management. The efficiency level was rated on a five-point scale from one to five, with five being the most efficient and one being the least efficient. Column (8) of Table 1. provides the average efficiency factor for each parameter as determined from the data provided by the respondents. Column (9) provides the average of the efficiency factors for each process. It is noted that the planning process has the highest efficiency followed by the team acquisition process, while team development and team management have the lowest efficiency factors. The low level of team integration and team morale became clear from the quantified results and these factors were ranked low, as described above.

The weight and level of efficiency of the parameters were combined in a performance factor. The performance factor of each parameter is obtained as the product of a parameter's weight per process [Column (7)] times the assigned efficiency of this specific parameter [Column (8)]. The result of this step is offered in Column (10). The performance factors of all parameters from the same process were then added together to calculate the overall performance factor of the process, as provided in Column (11). It is easily observed from the table that the planning and team acquisition processes have similar performance factors of around 3.25. On the other hand, the performance factors obtained for team development and team
management processes are considerably lower, with values around 2.7. Fig.2. presents the distribution of the weights of each process as deduced from the data collected.

b. Human Resource Management Tools

The tools and techniques utilized by the project management team in the human resource management process in construction projects were investigated using the same method as used for the management parameter discussed earlier. Table 2. presents a summary of the results of these management tools. The eigenvalues of the managerial tools show that recognition and rewards were indicated as the most important tool to enhance the competence of the working staff. Four tools could be grouped together in a second category according to the calculated eigenvalues. These tools are general management skills, training, observation and conversation, and team building, sorted in descending order. It is easily observed that all of these tools and techniques are associated with team development and team management. These results reflect the real need of the employees for more appreciation through recognition and reward systems. In addition, enhancing the sentiments of individuals toward the team, project, and firm is useful. The process weights illustrate the importance of team development, which has a calculated process weight of 51%. Team management tools come next with an importance weight of 25%, while planning and team acquisition have low tool weights of 16% and 8%, respectively, as shown in Fig.3.

Table 2. shows the values proposed by the participants for the efficiency factors of each of the managerial tools and techniques considered. Planning tools have the highest efficiency factors, with all of its factors around the value of 3.30 on a five-point scale. Team acquisition tools received an efficiency evaluation around the average of 2.79, while the negotiation process shows high efficiency with a factor of 3.48. Team development tools have lower efficiency

| #  | Process        | Parameter                        | Parameter Weight | Process Weight | Process weight % | Efficiency | Process Performance | Parameter Performance |
|----|----------------|----------------------------------|------------------|----------------|-----------------|------------|---------------------|-----------------------|
| 1  | Planning       | Enterprise Environment           | 0.2466           | 0.0982         | 35%             | 3.68       | 1.5413              | 3.25                  |
| 2  |                | Organizational Process           | 0.0164           |                |                 | 3%         | 3.47                | 0.9668                |
| 3  |                | Project Management Plan          | 0.1379           |                |                 | 23%        | 3.03                | 0.7095                |
| 4  |                | Roles & Responsibilities         | 0.0909           |                |                 | 15%        | 2.36                | 0.3641                |
| 5  |                | Project Organization Charts      | 0.0151           |                |                 | 3%          | 3.39                | 0.0869                |
| 6  |                | Staffing Management Plan         | 0.0820           |                |                 | 14%        | 3.26                | 0.4539                |
| 7  | Acquisition    | Enterprise Environment           | 0.2466           | 0.0698         | 25%             | 3.68       | 1.8571              | 3.30                  |
| 8  |                | Organizational Process           | 0.0164           |                |                 | 3%          | 3.47                | 0.1166                |
| 9  |                | Roles & Responsibilities         | 0.0909           |                |                 | 19%        | 2.36                | 0.4387                |
| 10 |                | Project Organization Charts      | 0.0151           |                |                 | 3%          | 3.39                | 0.1047                |
| 11 |                | Staffing Management Plan         | 0.0820           |                |                 | 17%        | 3.26                | 0.5469                |
| 12 |                | Project Staff Assignments        | 0.0249           |                |                 | 5%          | 3.43                | 0.1749                |
| 13 |                | Resource Availability            | 0.0128           |                |                 | 3%          | 2.23                | 0.0585                |
| 14 | Team Development| Project Staff Assignments      | 0.0249           | 0.0519         | 19%             | 12%        | 3.43                | 0.4122                |
| 15 |                | Staffing Management Plan         | 0.0820           |                |                 | 40%        | 3.26                | 1.2888                |
| 16 |                | Resource Availability            | 0.0128           |                |                 | 6%          | 2.23                | 0.1378                |
| 17 |                | Team Performance Assessment      | 0.0877           |                |                 | 42%        | 2.23                | 0.9426                |
| 18 | Team Management| Organizational Process Assets   | 0.0164           | 0.0582         | 21%             | 2%         | 3.47                | 0.0770                |
| 19 |                | Project Staff Assignments        | 0.0249           |                |                 | 3%          | 3.43                | 0.1155                |
| 20 |                | Roles & Responsibilities         | 0.0909           |                |                 | 12%        | 2.36                | 0.2895                |
| 21 |                | Project Organization Charts      | 0.0151           |                |                 | 2%          | 3.39                | 0.0691                |
| 22 |                | Staffing Management Plan         | 0.0820           |                |                 | 11%        | 3.26                | 0.3610                |
| 23 |                | Team Performance Assessment      | 0.0877           |                |                 | 12%        | 2.23                | 0.2640                |
| 24 |                | Work Performance Information     | 0.0537           |                |                 | 7%         | 2.59                | 0.1878                |
| 25 |                | Performance Reports              | 0.1110           |                |                 | 15%        | 2.17                | 0.3253                |
| 26 |                | Changes                          | 0.0316           |                |                 | 4%          | 2.47                | 0.1053                |
| 27 |                | Corrective Actions               | 0.0482           |                |                 | 7%          | 2.45                | 0.1595                |
| 28 |                | Preventive Actions               | 0.0412           |                |                 | 6%          | 2.33                | 0.1296                |
| 29 |                | Project Management Plan          | 0.137895         |                |                 | 19%        | 3.03                | 0.5642                |
factors, with an average of 2.66. Colocation is the only tool in the team development process that has a high efficiency factor of 3.99 while all other tools have factors less than 2.65. It should be noticed that the nature of construction projects forces colocation. Team management tools have the lowest appreciation for efficiency. The efficiency factors for this process have an average score of 2.33 with all factors below 2.60.

The best performance factor for the managerial tools was from planning tools, with a performance factor of 3.27. Team acquisition comes next with a performance factor of 3.00 and then team development and team management with factors as low as 2.38 and 2.25, respectively. The low performance factors for team development and team management processes reinforce the finding that construction projects in Kuwait are in strong need of more attention to team trust and cohesiveness among team members to raise project productivity.

The comparison between the performance of the managerial parameters and the managerial tools in the construction projects in Kuwait, as indicated by the participants, is shown in Fig.4. The figure shows that a strong need exists to improve the awareness, knowledge, and skills of the team development and team management processes to improve the
productivity of construction projects in Kuwait. Project planning and team acquisition are in a better situation because of the previous involvement of international firms and personnel. This involvement has helped the establishment of a project initiation system for the Kuwaiti authorities and large local construction firms.

7. Summary and Conclusions

The study presented here introduced a methodology to evaluate human resource management processes on construction projects. It used the inputs, outputs, and tools and techniques recommended by the guidelines of the Project Management Body of Knowledge (PMBOK, 2004). The inputs and outputs of each process were considered as the parameters in the HR management process. The tools and techniques were dealt with as a separate category. The opinions of experts in the field of construction projects were collected regarding the importance of the considered managerial parameters and tools. The AHP was utilized to evaluate the order of each parameter. The performance of each process presented the importance weight and the proposed level of efficiency of that variable.

The results of the study can be summarized by the following points:

- Human resource management in construction projects in Kuwait is below the targeted international standard.
- Planning activities are the most developed process in the HR management processes.
- Team development and team management processes are far below the level desired/needed to enhance the productivity of construction projects.
- The tenure stability of the citizens reduces loyalty toward the project entity much less than loyalty toward the functional entity.

The following main recommendations can be deduced for the construction industry in Kuwait:

- Stressing privatization for the construction industry will attract citizens to the private sector and encourage them to enhance their competence capacities.
- Improving communications among stakeholders inside and outside jobsites would also improve team productivity.
- Allowing more space for recognition and rewards in private and government sectors would encourage individuals to exert optimum effort on projects. Moreover, relating rewards to training activities, team building, ground rules, and performance reports is important.
- Improving the observation system in the government sector throughout the project life cycle and relating these observations to a standard metric would be beneficial.

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