Current Practices on Labour Management in Building Construction Projects

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Abstract: This paper describes the current labour management practices in building construction projects in Myanmar. In this study, construction labour management practices can be viewed as four categories which are labour management practices affect on project, manpower problems by shortcoming of labour management practices, factors on increasing labour productivity by good labour management practices and factors on reducing labour productivity by poor labour management practices. The principal tool used for collection of data is quantitative survey (numerical values); questionnaires for field survey. Data for the survey are obtained through a structured questionnaire administered to respondents in number of 80. The respondents involve 20 project engineers, 45 site engineers and 15 contractors. The responses from all respondents are analyzed by using Relative Important Index (RII) method to rank the factors. In addition, H test or Kruskal-Wallis test is used to check the opinions of all respondents. From the H test results, the opinions of all respondents on labour management functions affect on project, factors on increasing labour productivity and reducing labour productivity are identical. But the opinions on manpower problems are not identical.

Keywords: Labour Management Practices, Manpower Problems, Labour Productivity, Relative Important Index (RII), H Test.

I. INTRODUCTION

The construction sector has a very strategic role in development, primarily in the provision of infrastructure and facilities and infrastructure that support the development of a country. Currently the construction sector continues to experience rapid growth, these developments affect the increased needs of the elements associated with the construction services sector, one of which is labour. Workforce is one of the important elements that affect the continuity and smooth implementation of construction projects. Availability of labours that have good scales is a key factor to get a good quality product. Labour management in building construction means controlling the manpower problems, improving labour productivity and reducing time and cost overrun of projects. To improve the labour performance, there will be needed a good labour management practices. Although there are many practices in different countries, only six labour management practices which are labour management functions or activities are considered in Myanmar.

II. LABOUR MANAGEMENT PRACTICES

Many countries are being accepted many activities of labour management, there should have the following aligned activities:

- manpower planning
- job analysis
- recruitment and selection
- training and developing
- career development

Among them construction projects in Myanmar are accepting and utilizing activities are the following:

- Manpower Planning
- Recruitment

- performance management
- compensation and benefits
- discipline and
- safety and health

Also, Pfeffer (1998) described that HRM activities that promote a sustainable path to competitiveness should involve the following:

- employment security
- selective recruiting
- high wages
- incentive pay
- employee ownership
- information sharing
- participation and empowerment
- teams and job redesign
- training as skill development
- cross-utilization and cross-training
- symbolic egalitarianism
- wage compression
- promotion from within
- long-term perspective
- measurement of practices
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A. Manpower planning
Manpower planning has become an important management tool for balancing and structuring the skills of the workforce (Gill, 1996). Which is also called as Human Resource Planning consists of putting right number of people, right kind of people at the right place, right time, doing the right things for which they are suited for the achievement of goals of the organization.

B. Recruitment
Recruitment, as a human resource management function, is one of the activities that impact most critically on the performance of an organization. Recruitment is described as "the set of activities and processes used to legally obtain a sufficient number of qualified people at the right place and time so that the people and the organization can select each other in their own best short and long term interests".

C. Selection
Selection is defined as the process of choosing the best labour from all construction labour and process of putting right men on right job. In other word, selection is the procedure of matching organizational requirements with the skills and qualifications of to be employees. Selection can be used to attract and hire new employees who have abilities, skills, and experience that will help an organization achieve its goals.

D. Training and development
Training and development is defined as a process of developing work-related knowledge and skills in employees for the purpose of improving performance systematically. Training can be used effectively for developing technical and problem-solving skills.

E. Motivation
Motivation may be defined as the characteristic of an individual willing to expend effort towards a particular set of behaviours. Lack of motivation in return affects productivity and a number of symptoms resulting in low morale, low or declining productivity, poor workplace atmosphere, high employees turnover, increasing number of grievances, conflicts, higher incidence of absenteeism and tardiness, increasing number of defective products, rework, higher number of accidents or a higher level of waste materials and scrap.

F. Safety and health at work
Safety behaviour is reflected by good attitude. Many accidents/incidents that occurred in the workplace especially in the building construction sites were due to inadequate adherence of workers to work procedures. The workers must realize that they play an important role contributing in the accomplishment of the building construction. The awareness and perception of the workers toward safety, health and their working environment are important aspects to enhance the building construction to the better condition to the workers themselves. A safe and healthy working environment helps improve efficiency, reduce accidents, prevent impairment to health and promote good labour management relations. Effective safety and health management help companies discharge their legal duties for ensuring safety and health at work and also keep their safety and health risks under control.

III. AIM AND OBJECTIVES
The main objective of this study is to investigate the current labour management practices in upper Myanmar building construction projects. In order to achieve the research aim, three key objectives are set up. These are:

- To identify labour management functions affect on project time, cost and quality in building constructions
- To investigate manpower problems in building construction projects by shortcoming of labour management
- To identify factors affecting on labour productivity in building construction projects

IV. RESEARCH METHOD
Survey is made through questionnaires distributed to respondents who involve in managing various types of building projects in upper Myanmar. They are project engineers, site engineers and contractors. They work in construction companies in Myanmar. To analyse and rank the factors from three respondents, Relative Important Index (RII) method is used. Based on these results, the degree of agreement among the groups of respondents regarding the ranking of factor are determined according to the H test, or Kruskal-Wallis test, one of nonparametric statistics test. The H test is a generalization of the U test in that it enables us to test the null hypothesis that k independent random samples come from identical populations. As in the U test, all the observations are ranked jointly, and \( n_1 + n_2 + \ldots + n_k = n \), the test is based on the statistic. H test is computed by the following equation:

\[
H = \frac{12}{n(n+1)} \sum \frac{R_i^2}{n_i} - 3(n+1)
\]

Where,

- \( R_i \) = the sum to ranks by the \( n_i \)
- \( n_i \) = observations of the \( i \)th sample
- \( k \) = independent random samples
- \( n \) = number of factors

Null hypothesis: \( H_0 \): The opinion is identical among project engineers, site engineers and contractors.

Alternative hypothesis: \( H_1 \): The opinion is not identical among project engineers, site engineers and contractors.

The significance level of a test, denoted by \( \alpha \), is the accepted risk of committing. For example, \( \alpha = 0.05 \) is commonly used. If less risk is acceptable, \( \alpha \) can be set lower, say \( \alpha = 0.01 \). If more risk is allowable, \( \alpha = 0.10 \) may be used. The rejection region is the range of values of the test statistic.
that would lead to rejecting the null hypothesis. In this research, 0.05 of significance level is satisfied for testing.

V. DATA COLLECTION
Descriptive method of analysis is adopted in analyzing the data collection from the questionnaire survey. The Relative Important Index (RII) is used in determining the rank of each item. The rankings are further used to cross compare the relative important of the item as perceived by the three groups of respondents. They are project engineers (PE), site engineers (SE) and contractors (C). Figure 1 shows the general receiving of the questionnaires.

![Percentage of received questionnaires](image)

Figure 1: Receiving of the Questionnaires.

Total numbers of 80 questionnaires administered to project participants (20 for project engineers, 45 for site engineers and 15 for contractors), 70(87.5%) were fully completed and returned. Figure I show that the aggregate response rate of site engineers is 37(82%) while that of the project engineers is 18(90%) and the response rate of contractors is 15(100%). All the questionnaires are administered in person by the research assistants engaged for the study.

VI. DATA ANALYSIS
The survey data are grouped into four major areas according to labour management functions; functions affect on project time, cost and quality, manpower problems by shortcoming of labour management practices, factors on increasing labour productivity and factors on reducing labour productivity. According to the objectives, following four categories can be classified.

1. Labour Management Functions Affect on Project Time, Cost and Quality
   - Manpower Planning
   - Recruitment
   - Selection
   - Training and Development
   - Motivation
   - Safety and Health at work

2. Manpower Problems by Shortcoming of Labour Management Practices
   - Low amount of payment
   - High labour turnover
   - Shortage of skill labour
   - Labour lack of time respect
   - Lack of education
   - Don’t use safety equipment in work
   - Communication problems with foreign workers
   - Poor skill of the workers
   - Lack of safety knowledge and training
   - No have interesting in work
   - Poor teamwork
   - Don’t obey the rules and regulations
   - Poor labour management
   - Poor skill to use construction materials
   - Absenteeism of construction workers at work sites
   - Don’t obey an order
   - Difficult recruitment workers
   - Misunderstanding between workers
   - Lack of labour safety
   - Increasing child labour
   - Inadequate training

3. Factors on Increasing Labour Productivity by Good Labour Management Practices
   - Good management of the workers
   - Good working disciplines
   - Satisfaction at work
   - Recognizance to labour
   - Facilities at workplace (availability of materials and equipments)
   - Good relation with working community
   - Good relation between labour and superintendents
   - Good relation between employer and employee
   - Bonus
   - Good health & safety condition
   - Good relation between labour
   - High amount of payment
   - The stability of the works
   - Giving responsibility
   - Health insurance
   - Giving place for eating and relaxation
   - Sharing problems and their results between workers
   - Insurance for injury workers at the workplace
   - Place welfare facilities
   - Site near to home
   - Relaxation trips
   - Assigns contracts and workers
   - Creating competition
   - Workers participation in decision making
   - Cultural differences

4. Factors on Reducing Labour Productivity by Poor Labour Management Practices
   - Poor skill workers
   - The workers are not satisfied
   - Working 7 days per week without taking a holiday
   - Poor or no supervision method
   - Poor management of project manager
   - Misunderstanding between workers
• Personal problems of the workers
• Psychological pressure on workers
• Low labour morale
• Unqualified training for workers
• Working overtime
• Unemployment
• Difficulty with recruitment of workers
• Foremen change
• New workers
• Don’t distributes new workers with old
• Low leadership skill of project engineers
• Inspection delay

A. Opinions among Respondents
The following tables state the types of respondents, rank values and \( R_i \) (total rank values) of each groups.

**TABLE I: RANK VALUES OF LABOUR MANAGEMENT FUNCTIONS ON PROJECT TIME FOR H TEST STATISTICS**

<table>
<thead>
<tr>
<th>Types of Respondents</th>
<th>Rank values</th>
<th>Rank Sum (( R_i ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
<td>1 2 7 8 10 11</td>
<td>39</td>
</tr>
<tr>
<td>SE</td>
<td>5 9 15 16 17 18</td>
<td>80</td>
</tr>
<tr>
<td>C</td>
<td>3 4 6 12 13 14</td>
<td>52</td>
</tr>
</tbody>
</table>

**TABLE II: RANK VALUES OF LABOUR MANAGEMENT FUNCTIONS ON PROJECT COST FOR H TEST STATISTICS**

<table>
<thead>
<tr>
<th>Types of Respondents</th>
<th>Rank values</th>
<th>Rank Sum (( R_i ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
<td>2 4 4 6 7 13</td>
<td>36</td>
</tr>
<tr>
<td>SE</td>
<td>8 9 10 11 16 17</td>
<td>71</td>
</tr>
<tr>
<td>C</td>
<td>1 4 12 14 15 18</td>
<td>64</td>
</tr>
</tbody>
</table>

**TABLE III: RANK VALUES OF LABOUR MANAGEMENT FUNCTIONS ON PROJECT QUALITY FOR H TEST STATISTICS**

<table>
<thead>
<tr>
<th>Types of Respondents</th>
<th>Rank values</th>
<th>Rank Sum (( R_i ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
<td>1 3 7 7 12 14</td>
<td>44</td>
</tr>
<tr>
<td>SE</td>
<td>2 9 13 15 17 18</td>
<td>74</td>
</tr>
<tr>
<td>C</td>
<td>4 5 7 10 11 16</td>
<td>53</td>
</tr>
</tbody>
</table>

**TABLE IV: RANK VALUES OF MANPOWER PROBLEMS BY SHORTCOMING OF LABOUR MANAGEMENT FOR H TEST STATISTICS**

<table>
<thead>
<tr>
<th>Types of Respondents</th>
<th>Rank values</th>
<th>Rank Sum (( R_i ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
<td>4.5 12 19 20 22 32.5</td>
<td>840.5</td>
</tr>
<tr>
<td>SE</td>
<td>2 3 6 9 10 11 15.5</td>
<td>441</td>
</tr>
<tr>
<td>C</td>
<td>1 4.5 7 8 15.5 15.5</td>
<td>705</td>
</tr>
</tbody>
</table>

**TABLE V: RANK VALUES OF FACTORS ON INCREASING LABOUR PRODUCTIVITY FOR H TEST STATISTICS**

<table>
<thead>
<tr>
<th>Types of Respondent</th>
<th>Rank values</th>
<th>Rank Sum (( R_i ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
<td>2 4 5 6 7 8 11 12 17</td>
<td>657</td>
</tr>
<tr>
<td>SE</td>
<td>3 14 15 16 18 21 24 29 31</td>
<td>1012.5</td>
</tr>
<tr>
<td>C</td>
<td>1 9 10 13 19 26.5 26.5 33 43</td>
<td>1140</td>
</tr>
</tbody>
</table>

**TABLE VI: RANK VALUES OF FACTORS ON REDUCING LABOUR PRODUCTIVITY FOR H TEST STATISTICS**

<table>
<thead>
<tr>
<th>Types of Respondent</th>
<th>Rank values</th>
<th>Rank Sum (( R_i ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
<td>3 8 11 12 13 20 23 24 31</td>
<td>535</td>
</tr>
<tr>
<td>SE</td>
<td>2 4 5 7 10 14 15 17 21 25 27 31</td>
<td>398.5</td>
</tr>
<tr>
<td>C</td>
<td>1 6 9 16 18 19 22 27 27 36.5 41 42 43 44</td>
<td>548.5</td>
</tr>
</tbody>
</table>

The rank values obtained from the above tables (I, II, III, IV, V, VI) are used for testing with H test there is a same or not opinion among the respondents groups. The opinions are identical or not identical on each category is described in table VII.

**TABLE VI: SUMMARY OF H TEST RESULTS**

<table>
<thead>
<tr>
<th>Factors</th>
<th>( H ) value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour management functions on project time</td>
<td>5.135</td>
<td>Accept ( H_0 )</td>
</tr>
<tr>
<td>Labour management functions on project cost</td>
<td>4.012</td>
<td>Accept ( H_0 )</td>
</tr>
<tr>
<td>Labour management functions on project quality</td>
<td>2.772</td>
<td>Accept ( H_0 )</td>
</tr>
<tr>
<td>Manpower problems</td>
<td>6.122</td>
<td>Reject ( H_0 )</td>
</tr>
<tr>
<td>Factors on increasing labour productivity</td>
<td>4.118</td>
<td>Accept ( H_0 )</td>
</tr>
<tr>
<td>Factors on reducing labour productivity</td>
<td>2.425</td>
<td>Accept ( H_0 )</td>
</tr>
</tbody>
</table>

From the results, the labour management functions affect on project time, cost and quality in building construction, factors affect on increasing labour productivity and reducing labour productivity, the \( H \) values are less than \( \chi^2 = 5.991 \) with 2 degree of freedom and 95% confidence level (\( \alpha = 0.05 \)), the null hypothesis, \( H_0 \), is accepted and the alternative
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hypothesis, $H_0$, is rejected. Therefore, it can be said that there is opinion is identical among the project engineers, site engineers and contractors regarding factors concern labour management in upper Myanmar’s building construction projects. On the other hand, for manpower problems in building construction projects, the $H$ value is greater than $\chi^2 = 5.991$ with 2 degree of freedom and 95% confidence level, then it is not accepted the null hypothesis, $H_0$. Therefore, it can be said that the opinion is not identical among the project engineers, site engineers and contractors.

VII. DISCUSSION AND CONCLUSION

This research emphasizes on labour management practices, manpower problems and factors affecting on labour productivity in building construction projects. The labour management practices are manpower planning, recruitment, selection, training and development, motivation and safety and health at work. Manpower problems in Myanmar are low amount of payment, high labour turnover, shortage of skill labour, labour lack of time respect and lack of labour education, etc. Most important factors on increasing labour productivity are good management of the workers, good working disciplines, satisfaction at work, recognizance to labour and facilities at workplace. On the other hand, the most important factors on reducing labour productivity are poor skill workers; the workers are not satisfied, working 7 days per week without a holiday, poor or no supervision method and poor management skill of project manager.

This paper also shows the findings of questionnaire survey on the opinions of project participants who are project engineers, site engineers and contractors in building construction projects. The role of these project participants are the importance in building constructions. Therefore, the opinions of among respondents are also important. In this study, $H$ test is used to determine, whether the opinions are identical or not identical among three respondents. For the opinions of all respondents on labour management functions affect on project, factors on increasing labour productivity and reducing labour productivity are identical. This is because all project engineer, site engineers and contractors are concerned with these groups. Therefore, the groups are important and should be considered to improve labour capabilities in building constructions. On the other hand, the opinions on manpower problems are not identical. This is because manpower problems in constructions are caused rarely. Hence, it can be said that manpower problems faced by three respondents are not the same from one project to another. Therefore, manpower problems are not considered to improve the capabilities of labour. In conclusion, development of the construction labour capabilities such as construction labour management has become necessity because productivity, quality and innovation are becoming increasingly for the Myanmar construction project.

VIII. ACKNOWLEDGEMENT

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IX. REFERENCES

[10] Jianjian Du, Chunlu Liy and David Picken (School of Architecture and Building, Deakin University, Geelong, Australia), A Preliminary Study on Human Resource Management in International Construction.